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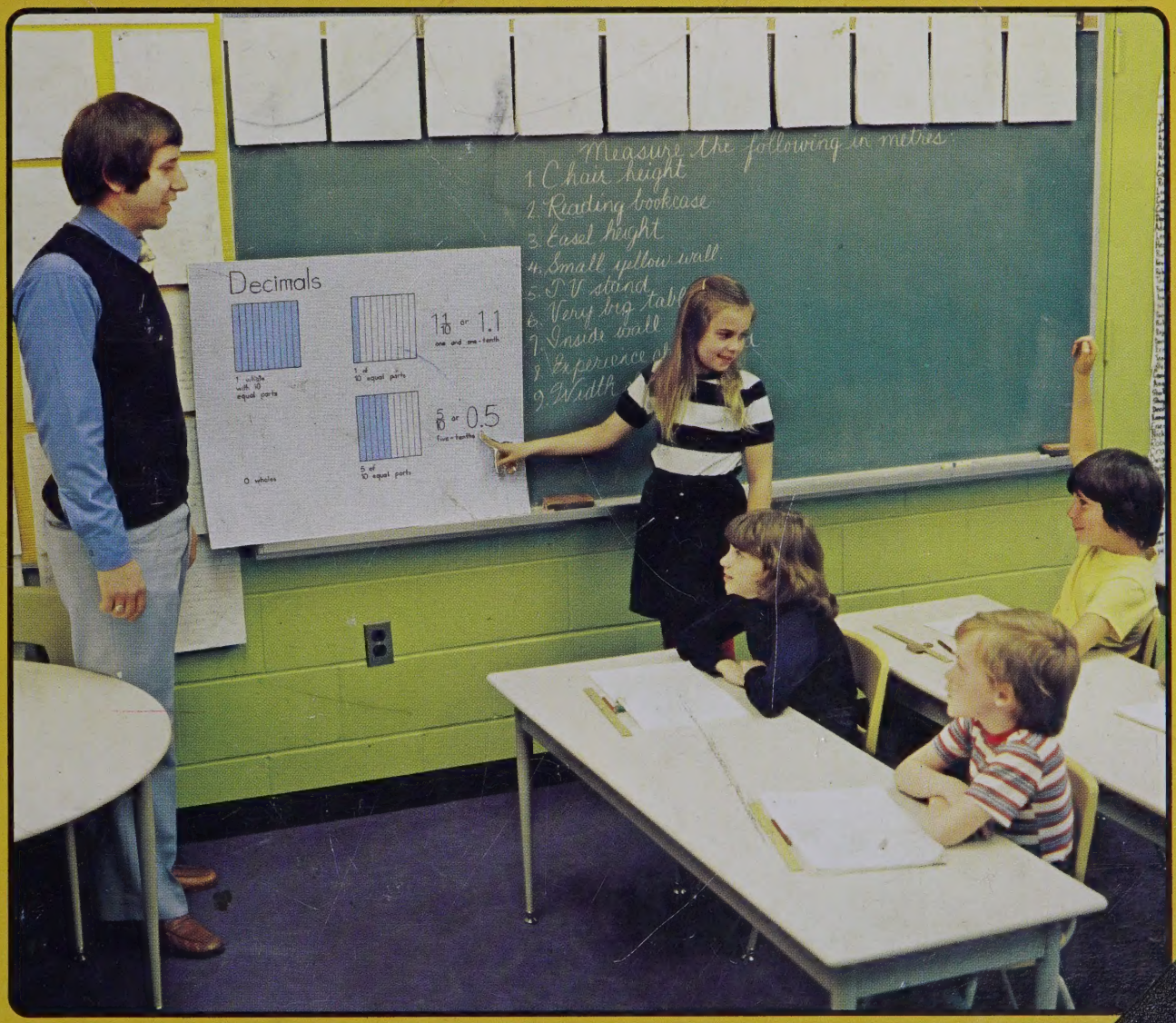
starting points in mathematics 3



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starting points in mathematics

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To the Students

Most of the lessons in this book are teaching lessons. Others are for practice.

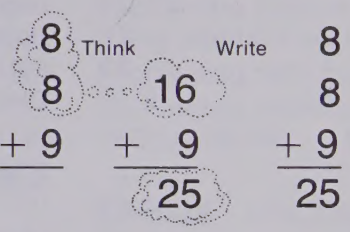
Teaching lessons have three parts:

1. The first part gives an example of what is to be learned.
2. The second part, Working Together, shows the ideas and the steps of what is to be learned. You may wish to use this part to see how all the steps work together. You may work together—with your teacher or with each other—to check your understanding of the ideas and the steps.
3. The third part, Exercises, gives you practice and lets you apply what you learned.

Adding Three Numbers

In the Canada Fitness Tests, the children were awarded 8 bronze, 8 silver, and 9 gold badges. How many badges were they awarded in all?

Add $8+8+9$.



The children were awarded 25 badges.

Working Together

What numbers do you think of for A and B?

1. 5, 9, +3 → A: ?, +3 → B: ?
2. 7, 8, +6 → A: ?, +6 → B: ?

Add.

3. 8, 2, +9
4. 9, 7, +8

Exercises

Add.

1. $6+9+3$
2. $5+8+4$
3. $7+9+5$
4. $8+8+8$
5. $3+9+9$
6. $4+7+8$
7. $9+5+8$
8. $3+7+5$

9. 6, 5, +6
10. 9, 5, +7
11. 8, 6, +9
12. 2, 8, +3
13. 7, 9, +6
14. 5, 8, +9

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Special Features

Practice with addition, subtraction, multiplication, and division

KEEPING SHARP

Some interesting ideas for fun and enrichment

try this

Lessons and activities to help you learn the skills you need for solving problems

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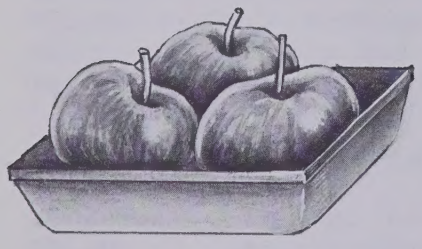
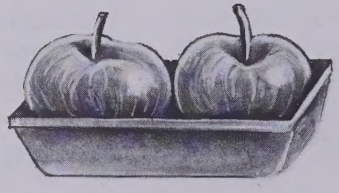
1 ADDITION AND SUBTRACTION FACTS

Joining Sets—Sums to 10

3 apples in one tray.
2 apples in another.
How many apples in all?





$$\begin{array}{r} 3 \\ +\ 2 \\ \hline 5 \end{array}$$

3
plus 2
equals 5

There are 5 apples in all.

The **addition sentence** $3 + 2 = 5$
also shows that 3 plus 2 equals 5.

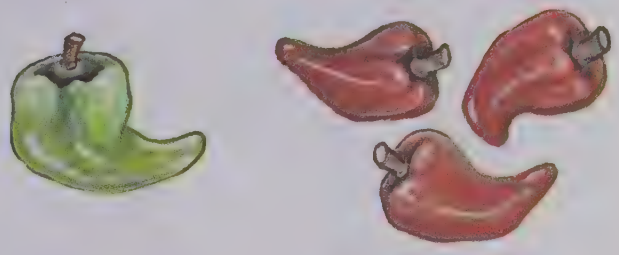
3 and 2 are **addends.** 5 is the **sum.**

For
the sum is the same,
2 + 3 = 5.

Working Together

1. How many yellow bananas?
2. How many green bananas?
3. How many bananas in all?
4. Complete this sentence.

$4 + 2 = \square$



5. How many green peppers?
6. How many red peppers?
7. How many peppers in all?
8. Give an addition sentence for the picture.

Add.

9. $\begin{array}{r} 1 \\ +\,5 \\ \hline \end{array}$ **10.** $\begin{array}{r} 3 \\ +\,4 \\ \hline \end{array}$ **11.** $\begin{array}{r} 4 \\ +\,6 \\ \hline \end{array}$ **12.** $0 + 7$ **13.** $3 + 3$

14. $7 + 0$ **15.** $2 + 4$

Exercises

Write an addition sentence for each picture.

1.

2.

Add.

3. $5 + 9$ **4.** $9 + 3$ **5.** $1 + 9$ **6.** $3 + 6$

7. $9 + 0$ **8.** $8 + 4$ **9.** $5 + 7$ **10.** $8 + 5$

11. $\begin{array}{r} 8 \\ +\,6 \\ \hline \end{array}$ **12.** $\begin{array}{r} 7 \\ +\,8 \\ \hline \end{array}$ **13.** $\begin{array}{r} 6 \\ +\,5 \\ \hline \end{array}$ **14.** $\begin{array}{r} 3 \\ +\,8 \\ \hline \end{array}$ **15.** $\begin{array}{r} 9 \\ +\,5 \\ \hline \end{array}$ **16.** $\begin{array}{r} 7 \\ +\,4 \\ \hline \end{array}$

17. $\begin{array}{r} 9 \\ +\,6 \\ \hline \end{array}$ **18.** $\begin{array}{r} 7 \\ +\,3 \\ \hline \end{array}$ **19.** $\begin{array}{r} 5 \\ +\,8 \\ \hline \end{array}$ **20.** $\begin{array}{r} 6 \\ +\,8 \\ \hline \end{array}$ **21.** $\begin{array}{r} 4 \\ +\,6 \\ \hline \end{array}$ **22.** $\begin{array}{r} 6 \\ +\,9 \\ \hline \end{array}$

Practice

Write an addition sentence and answer each question.

1. 3 red plums.
5 purple plums.
How many plums in all?

2. 4 loaves of white bread.
2 loaves of brown bread.
How many loaves in all?

3. 2 cartons of white milk.
3 cartons of chocolate milk.
How many cartons in all?

4. 6 cans of orange juice.
4 cans of lemonade.
How many cans in all?

5. 2 boxes of wheat flakes.
1 box of corn flakes.
How many boxes in all?

6. 5 cans of corn.
4 cans of peas.
How many cans in all?

7. 8 bars of yellow soap.
2 bars of white soap.
How many bars in all?

8. 6 cans of tomato soup.
3 cans of chicken soup.
How many cans in all?

Add.

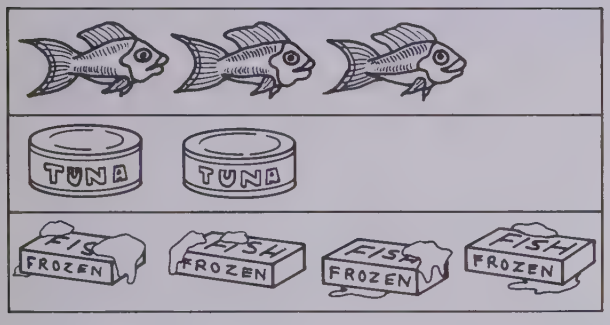
9. $9+0$	**10.** $5+1$	**11.** $3+3$	**12.** $1+2$
13. $0+5$	**14.** $2+5$	**15.** $6+1$	**16.** $8+0$
17. $6+2$	**18.** $4+4$	**19.** $1+3$	**20.** $3+1$

21. $\begin{array}{r} 4 \\ +5 \\ \hline \end{array}$	**22.** $\begin{array}{r} 2 \\ +8 \\ \hline \end{array}$	**23.** $\begin{array}{r} 4 \\ +0 \\ \hline \end{array}$	**24.** $\begin{array}{r} 3 \\ +7 \\ \hline \end{array}$	**25.** $\begin{array}{r} 9 \\ +1 \\ \hline \end{array}$	**26.** $\begin{array}{r} 7 \\ +2 \\ \hline \end{array}$
27. $\begin{array}{r} 1 \\ +6 \\ \hline \end{array}$	**28.** $\begin{array}{r} 4 \\ +3 \\ \hline \end{array}$	**29.** $\begin{array}{r} 0 \\ +7 \\ \hline \end{array}$	**30.** $\begin{array}{r} 1 \\ +9 \\ \hline \end{array}$	**31.** $\begin{array}{r} 2 \\ +2 \\ \hline \end{array}$	**32.** $\begin{array}{r} 5 \\ +5 \\ \hline \end{array}$

Write an addition sentence to show the sum of each pair.

33. 4 and 6	**34.** 8 and 1	**35.** 7 and 0	**36.** 1 and 5
37. 0 and 9	**38.** 5 and 2	**39.** 2 and 7	**40.** 1 and 8
41. 2 and 4	**42.** 3 and 2	**43.** 5 and 3	**44.** 6 and 0

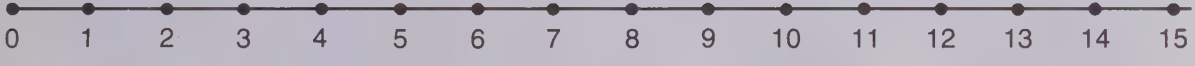
Mr. Kirby bought these items.



Write an addition sentence and answer each question.

45. How many cans or boxes did he buy?

46. How many items did he buy that were not frozen?



Follow each pattern and write the next three numbers.

1. 1, 3, 5, 7, ▒, ▒, ▒

2. 0, 2, 4, 6, ▒, ▒, ▒

3. 0, 3, 6, 9, ▒, ▒, ▒

4. 7, 6, 5, 4, ▒, ▒, ▒

5. 12, 10, 8, 6, ▒, ▒, ▒

6. 18, 15, 12, 9, ▒, ▒, ▒

7. 2, 5, 8, 11, ▒, ▒, ▒

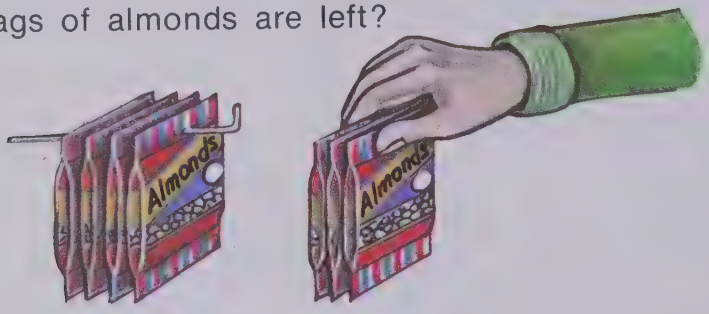
8. 1, 4, 7, 10, ▒, ▒, ▒

9. Start a number pattern of your own. Write the first four numbers. Have a friend write the next three.

try this

Separating Sets – Minuends to 10

7 bags of almonds.
Buy 3 bags. How many bags of almonds are left?



$$\begin{array}{r} 7 \\ -\ 3 \\ \hline 4 \end{array}$$

7 minus 3 equals 4

There are 4 bags left.

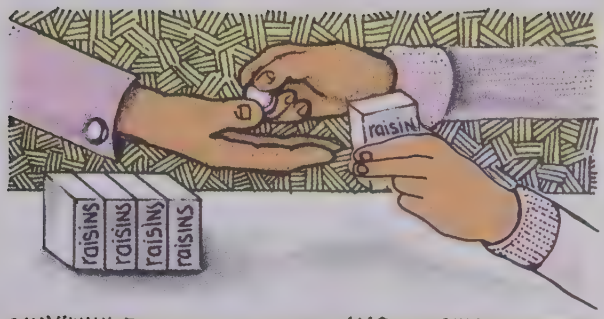
The **subtraction sentence** $7 - 3 = 4$ also shows that 7 minus 3 equals 4.

4 is the **difference** of 7 and 3.

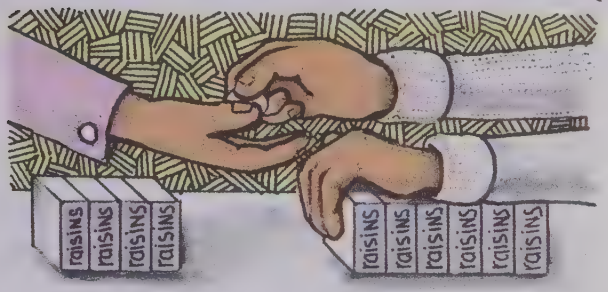
Working Together

1. How many boxes in all?
2. 1 box is sold.
   How many are left?
3. Complete this sentence.

   $5 - 1 =$ ▒



4. How many boxes in all?
5. 6 boxes are sold.
   How many are left?
6. Give a subtraction sentence
   for the picture.



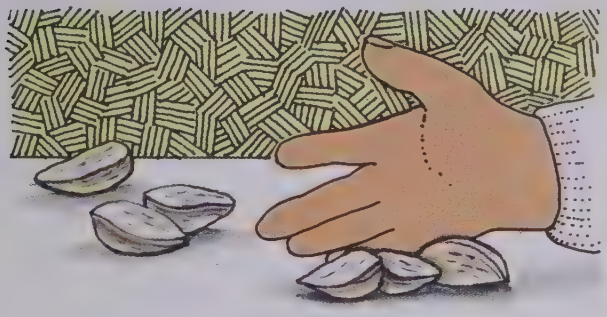
Subtract.

7. $\begin{array}{r} 5 \\ -3 \\ \hline \end{array}$ **8.** $\begin{array}{r} 8 \\ -8 \\ \hline \end{array}$ **9.** $\begin{array}{r} 10 \\ -1 \\ \hline \end{array}$ **10.** $5 - 4$ **11.** $6 - 0$

Exercises

Write a subtraction sentence for each picture.

1.



2.

Subtract.

3. $9 - 4$ **4.** $8 - 1$ **5.** $4 - 4$ **6.** $10 - 3$

7. $5 - 0$ **8.** $6 - 5$ **9.** $10 - 9$ **10.** $9 - 2$

11. $\begin{array}{r} 8 \\ -3 \\ \hline \end{array}$ **12.** $\begin{array}{r} 5 \\ -5 \\ \hline \end{array}$ **13.** $\begin{array}{r} 8 \\ -4 \\ \hline \end{array}$ **14.** $\begin{array}{r} 9 \\ -0 \\ \hline \end{array}$ **15.** $\begin{array}{r} 3 \\ -2 \\ \hline \end{array}$ **16.** $\begin{array}{r} 6 \\ -1 \\ \hline \end{array}$

17. $\begin{array}{r} 7 \\ -6 \\ \hline \end{array}$ **18.** $\begin{array}{r} 8 \\ -6 \\ \hline \end{array}$ **19.** $\begin{array}{r} 10 \\ -2 \\ \hline \end{array}$ **20.** $\begin{array}{r} 10 \\ -4 \\ \hline \end{array}$ **21.** $\begin{array}{r} 10 \\ -5 \\ \hline \end{array}$ **22.** $\begin{array}{r} 10 \\ -7 \\ \hline \end{array}$

Comparing Sets – Minuends to 10

The bakery has eight kinds of doughnuts for sale.

How many more
maple doughnuts than
chocolate doughnuts are there?

How many fewer
chocolate doughnuts than
maple doughnuts are there?

There are 7 maple doughnuts.
There are 3 chocolate doughnuts.

$$7 - 3 = 4$$

There are 4 more maple doughnuts than chocolate doughnuts.

There are 4 fewer chocolate doughnuts than maple doughnuts.

Working Together

In the picture above,

1. how many cinnamon doughnuts?
2. how many nut doughnuts?
3. Give a subtraction sentence to show how many more cinnamon doughnuts there are than nut doughnuts.
4. Give a subtraction sentence to show how many fewer nut doughnuts there are than cinnamon doughnuts.

Exercises

Write a subtraction sentence and answer each question about the doughnuts.

1. How many more coconut doughnuts than chocolate coconut doughnuts?

2. How many fewer chocolate doughnuts than sugar doughnuts?

3. How many more cinnamon doughnuts than sugar doughnuts?

4. How many fewer chocolate doughnuts than cinnamon doughnuts?

Subtract.

5. $3 - 2$ **6.** $7 - 5$ **7.** $6 - 4$ **8.** $10 - 8$

9. $7 - 2$ **10.** $10 - 4$ **11.** $9 - 7$ **12.** $8 - 0$

13. $\begin{array}{r} 4 \\ -\,0 \\ \hline \end{array}$ **14.** $\begin{array}{r} 5 \\ -\,3 \\ \hline \end{array}$ **15.** $\begin{array}{r} 5 \\ -\,2 \\ \hline \end{array}$ **16.** $\begin{array}{r} 10 \\ -\,2 \\ \hline \end{array}$ **17.** $\begin{array}{r} 9 \\ -\,3 \\ \hline \end{array}$ **18.** $\begin{array}{r} 8 \\ -\,4 \\ \hline \end{array}$

19. $\begin{array}{r} 1 \\ -\,1 \\ \hline \end{array}$ **20.** $\begin{array}{r} 10 \\ -\,6 \\ \hline \end{array}$ **21.** $\begin{array}{r} 6 \\ -\,5 \\ \hline \end{array}$ **22.** $\begin{array}{r} 9 \\ -\,8 \\ \hline \end{array}$ **23.** $\begin{array}{r} 7 \\ -\,1 \\ \hline \end{array}$ **24.** $\begin{array}{r} 3 \\ -\,3 \\ \hline \end{array}$

Write a subtraction sentence to show the difference for each pair.

25. 5 and 2 **26.** 8 and 5 **27.** 3 and 0 **28.** 10 and 1

29. 6 and 6 **30.** 5 and 1 **31.** 10 and 4 **32.** 4 and 3

Write a subtraction sentence and answer each question.

33. Rebecca bought 5 honey doughnuts and 9 coconut doughnuts. How many fewer honey doughnuts did she buy?

34. Jill bought 2 doughnuts for herself and 6 for Bonnie. How many fewer did Jill buy for herself?

35. 7 maple doughnuts. Stuart bought 4 of them. How many maple doughnuts were left?

36. Stuart ate 1 of his 4 doughnuts. How many doughnuts did Stuart have left?

37. Dale bought 9 doughnuts. Mike bought 6 doughnuts. How many more doughnuts did Dale buy?

38. Shelly bought 10 doughnuts. She gave away 7. How many doughnuts did she have left?

Addition, Sums to 18

Kerry took 6 empty ginger ale bottles and
7 empty root beer bottles back to the store.
How many bottles did he take back in all?

Write the addition sentence

$$6 + 7 = 13$$

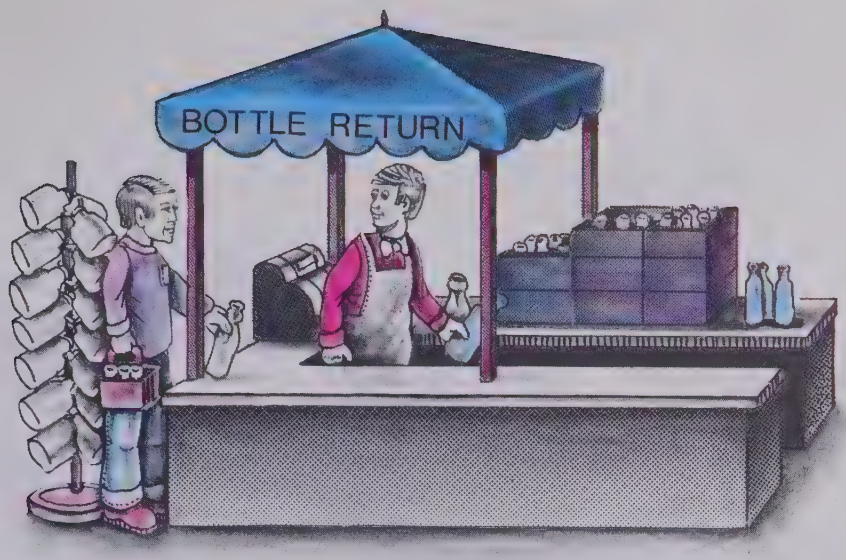
Kerry returned 13 bottles.

Working Together

1. How many blue bottles?
2. How many red bottles?
3. Give an addition sentence to show how many bottles in all.
4. How many tall bottles?
5. How many short bottles?
6. Give an addition sentence to show how many bottles in all.

Use "is greater than", "is less than",
or "is equal to" to make true sentences.

7. 5 + 6	3 + 9	**8.** 8 + 7	9 + 4	**9.** 8 + 8	5 + 9
10. 5 + 7	6 + 6	**11.** 7 + 9	9 + 7	**12.** 3 + 8	8 + 9
13. 9 + 1	8 + 2	**14.** 9 + 6	6 + 9	**15.** 4 + 8	8 + 4



Exercises

Write an addition sentence for each picture.

1.

2.

Add.

3. $5+9$	**4.** $9+3$	**5.** $1+9$		**6.** $3+6$
7. $9+0$	**8.** $8+4$	**9.** $5+7$		**10.** $8+5$

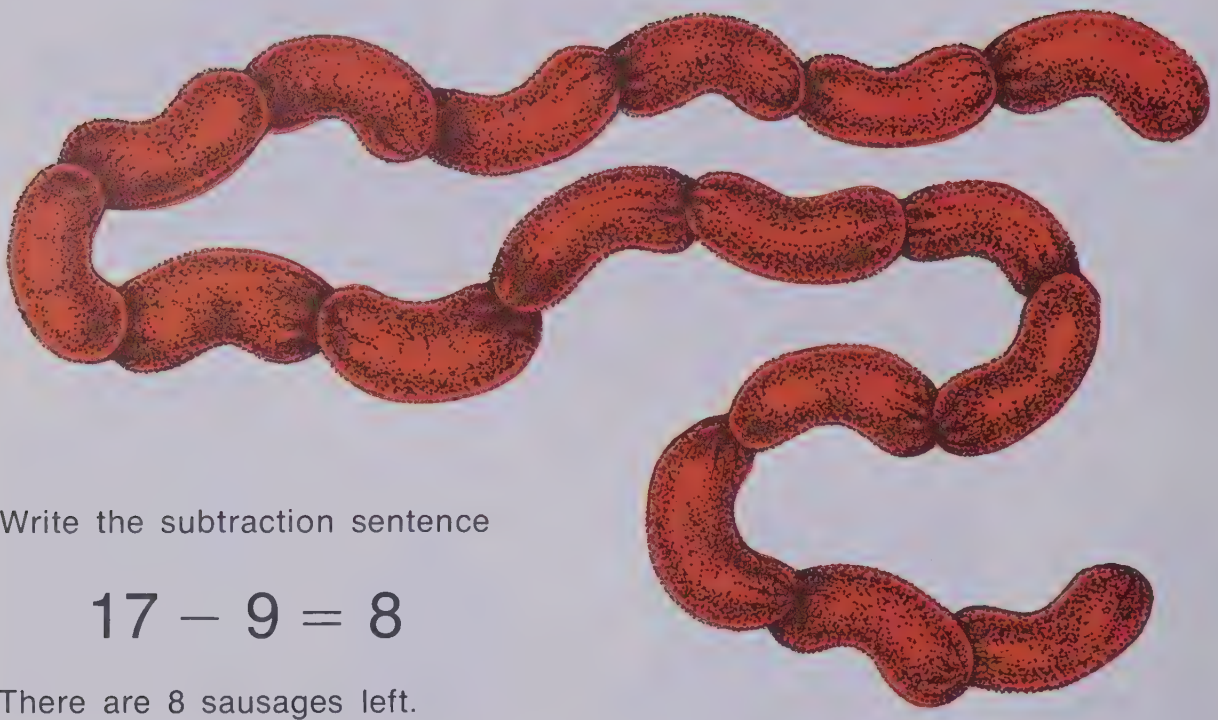
11. $\begin{array}{r} 8 \\ +6 \\ \hline \end{array}$	**12.** $\begin{array}{r} 7 \\ +8 \\ \hline \end{array}$	**13.** $\begin{array}{r} 6 \\ +5 \\ \hline \end{array}$	**14.** $\begin{array}{r} 3 \\ +8 \\ \hline \end{array}$	**15.** $\begin{array}{r} 9 \\ +5 \\ \hline \end{array}$	**16.** $\begin{array}{r} 7 \\ +4 \\ \hline \end{array}$
17. $\begin{array}{r} 9 \\ +6 \\ \hline \end{array}$	**18.** $\begin{array}{r} 7 \\ +3 \\ \hline \end{array}$	**19.** $\begin{array}{r} 5 \\ +8 \\ \hline \end{array}$	**20.** $\begin{array}{r} 6 \\ +8 \\ \hline \end{array}$	**21.** $\begin{array}{r} 4 \\ +6 \\ \hline \end{array}$	**22.** $\begin{array}{r} 6 \\ +9 \\ \hline \end{array}$

Write "is greater than", "is less than",
or "is equal to" to make true sentences.

23. $2+9$ $\quad 7+5$	**24.** $7+6$ $\quad 7+7$	**25.** $4+9$ $\quad 9+2$
26. $4+7$ $\quad 8+3$	**27.** $7+9$ $\quad 8+8$	**28.** $9+9$ $\quad 9+8$
29. $4+6$ $\quad 6+4$	**30.** $5+8$ $\quad 9+5$	**31.** $8+7$ $\quad 7+8$

Subtraction, Minuends to 18

17 sausages linked together.
Lisa buys 9 of them.
How many sausages are left?



Write the subtraction sentence

$$17 - 9 = 8$$

There are 8 sausages left.

Working Together

Give a subtraction sentence and answer each question.

1. The butcher cut 11 steaks. Mario bought 3 steaks. How many steaks are left?

2. Debbie bought 12 hot dogs and 8 hot-dog rolls. How many more hot dogs than rolls did she buy?

3. Which are names for 9?

$15 - 6$ $\quad$ $18 - 9$ $\quad$ $17 - 9$ $\quad$ $16 - 8$ $\quad$ $11 - 3$

4. Which are names for 6?

$12 - 5$ $\quad$ $13 - 5$ $\quad$ $16 - 9$ $\quad$ $12 - 6$ $\quad$ $14 - 8$

Subtract.

5. $\begin{array}{r} 12 \\ -\ 3 \\ \hline \end{array}$ $\quad$ **6.** $\begin{array}{r} 13 \\ -\ 9 \\ \hline \end{array}$ $\quad$ **7.** $14 - 7$ $\quad$ **8.** $17 - 8$

Exercises

1. Which are names for 5?

11 − 6
12 − 4
12 − 7

2. Which are names for 7?

14 − 7
16 − 9
13 − 7

3. Which are names for 8?

16 − 7
14 − 6
15 − 7

Subtract.

4. 11 − 5 **5.** 12 − 8 **6.** 15 − 8 **7.** 11 − 9

8. 12 − 3 **9.** 13 − 9 **10.** 11 − 7 **11.** 16 − 7

12. 12 − 9	**13.** 14 − 5	**14.** 11 − 2	**15.** 13 − 8	**16.** 12 − 6	**17.** 13 − 4
18. 11 − 8	**19.** 12 − 4	**20.** 15 − 9	**21.** 11 − 4	**22.** 13 − 6	**23.** 14 − 9

Write a subtraction sentence and answer each question.

24. 13 packages of bacon. Martha buys 4 packages. How many are left?

25. 9 slices of salami. Herb wants 16 slices. How many more slices must the butcher cut?

26. 18 lamb chops. 9 pork chops. How many more lamb chops than pork chops?

27. 14 chicken legs. 8 chicken wings. How many fewer wings than legs?

*__28.__ One dozen eggs. Gary breaks 3 eggs. How many eggs are not broken?

Practice

Rosa completed this table for the rule "Add 8".

+	8
3	11
6	14
4	12
8	16
9	17
5	13
7	15

$3 + 8 = 11$

$9 + 8 = 17$

Karl completed this table for the rule "Subtract 9".

−	9
13	4
16	7
12	3
15	6
17	8
11	2
18	9
14	5

This is Ashley's addition table.

+	7	8	9
7	14	15	16
8	15	16	17
9	16	17	18

Exercises

Copy and complete each table.

1.

+	6
7	13
9	
5	
8	
6	

2.

−	8
11	3
15	
16	
12	
17	
14	
13	

3.

+	9
2	
5	
8	
3	
4	
9	
7	
6	

4.

−	7
15	
12	
16	
11	
14	
13	

5.

+	4	5	6
7	11		
8			
9			

6.

−	6	5	4
9	3		
11			
13			

7.

+	7	9	4
9	16		
6			
8			

Add or subtract.

8. $5 + 8$ **9.** $4 + 7$ **10.** $15 - 9$ **11.** $7 + 7$

12. $11 - 3$ **13.** $14 - 5$ **14.** $7 + 8$ **15.** $17 - 9$

16. $\begin{array}{r} 8 \\ +8 \\ \hline \end{array}$ **17.** $\begin{array}{r} 18 \\ -9 \\ \hline \end{array}$ **18.** $\begin{array}{r} 8 \\ +6 \\ \hline \end{array}$ **19.** $\begin{array}{r} 7 \\ +9 \\ \hline \end{array}$ **20.** $\begin{array}{r} 11 \\ -2 \\ \hline \end{array}$ **21.** $\begin{array}{r} 12 \\ -9 \\ \hline \end{array}$

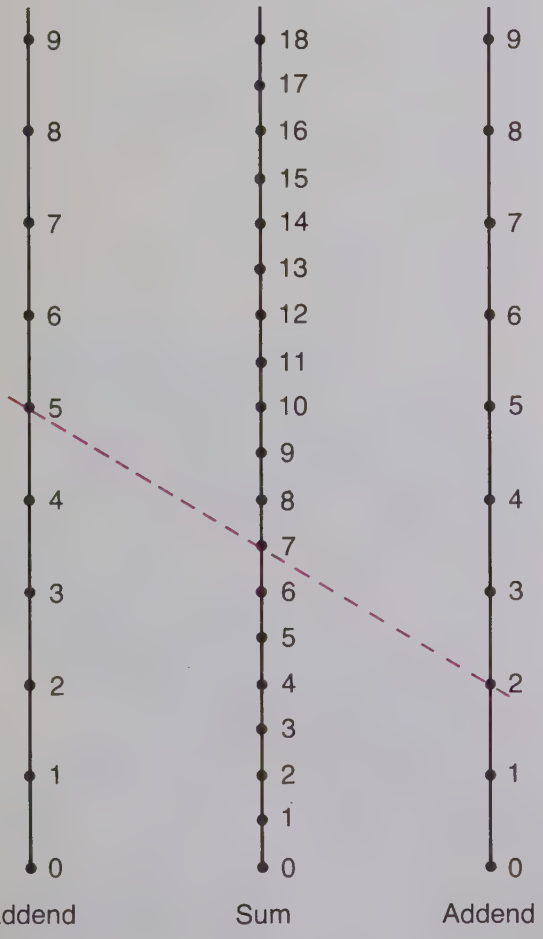
22. $\begin{array}{r} 14 \\ -6 \\ \hline \end{array}$ **23.** $\begin{array}{r} 4 \\ +8 \\ \hline \end{array}$ **24.** $\begin{array}{r} 12 \\ -5 \\ \hline \end{array}$ **25.** $\begin{array}{r} 9 \\ +5 \\ \hline \end{array}$ **26.** $\begin{array}{r} 2 \\ +9 \\ \hline \end{array}$ **27.** $\begin{array}{r} 11 \\ -9 \\ \hline \end{array}$

Write "is greater than", "is less than", or "is equal to" to make true sentences.

28. $8 + 3 \bigcirc 6 + 7$ **29.** $6 + 5 \bigcirc 12 - 3$ **30.** $13 - 8 \bigcirc 12 - 6$

31. $15 - 6 \bigcirc 17 - 8$ **32.** $15 - 8 \bigcirc 12 - 4$ **33.** $16 - 7 \bigcirc 2 + 6$

NOMOGRAPH



The line on the nomograph shows this addition fact.

$5 + 2 = 7$

Use a straight edge on the nomograph to find each sum.

1. $1 + 6$ **2.** $4 + 7$

3. $1 + 9$ **4.** $9 + 7$

5. $7 + 6$ **6.** $6 + 6$

7. $4 + 9$ **8.** $3 + 8$

9. $9 + 4$ **10.** $8 + 0$

Use the nomograph to find each difference.

11. $5 - 1$ **12.** $10 - 6$

13. $13 - 9$ **14.** $18 - 9$

15. $17 - 8$ **16.** $11 - 8$

17. $16 - 8$

18. $14 - 9$

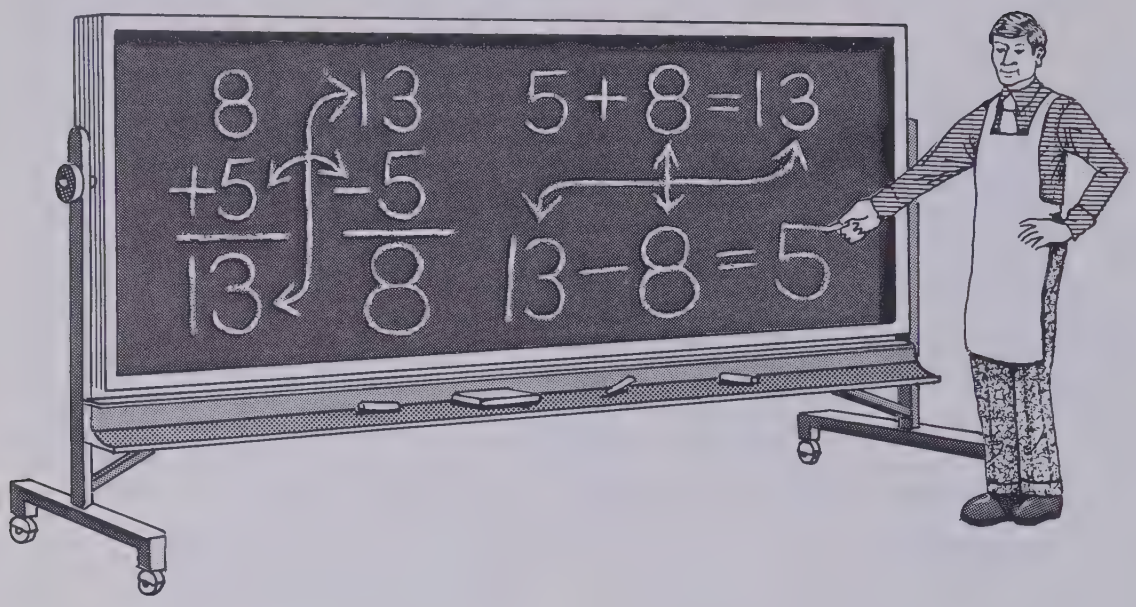
19. $15 - 7$

20. $12 - 8$

try this

Relating Addition and Subtraction Facts

Addition and subtraction are related.



Addition facts can help you remember subtraction facts.

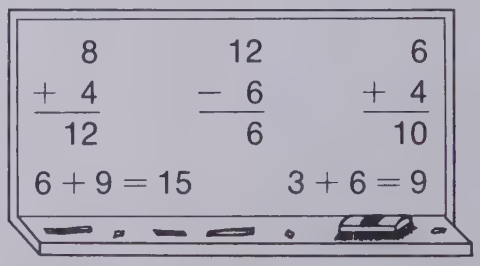
To find $\begin{array}{r} 15 \\ -\ 6 \\ \hline \end{array}$ think $\begin{array}{r} \square \\ +\ 6 \\ \hline 15 \end{array}$ $\begin{array}{r} 9 \\ +\ 6 \\ \hline 15 \end{array}$ $\begin{array}{r} 15 \\ -\ 6 \\ \hline 9 \end{array}$

Working Together

Choose a related fact from the chalkboard to match each fact.

1. $\begin{array}{r} 10 \\ -\ 4 \\ \hline 6 \end{array}$ **2.** $\begin{array}{r} 6 \\ +\ 6 \\ \hline 12 \end{array}$ **3.** $\begin{array}{r} 12 \\ -\ 4 \\ \hline 8 \end{array}$

4. $15 - 9 = 6$ **5.** $9 - 6 = 3$



Give a related fact for each.

6. $\begin{array}{r} 14 \\ -\ 7 \\ \hline 7 \end{array}$ **7.** $\begin{array}{r} 8 \\ +\ 2 \\ \hline 10 \end{array}$

Complete and give a related fact.

8. $12 - 9 = \square$ **9.** $8 + 3 = \square$

Exercises

Write a related fact for each.

1. $11 - 8 = 3$ **2.** $16 - 7 = 9$ **3.** $8 + 8 = 16$ **4.** $9 + 7 = 16$

5. $\begin{array}{r} 10 \\ -\ 7 \\ \hline 3 \end{array}$ **6.** $\begin{array}{r} 8 \\ +\ 9 \\ \hline 17 \end{array}$ **7.** $\begin{array}{r} 14 \\ -\ 9 \\ \hline 5 \end{array}$ **8.** $\begin{array}{r} 6 \\ +\ 8 \\ \hline 14 \end{array}$ **9.** $\begin{array}{r} 15 \\ -\ 7 \\ \hline 8 \end{array}$ **10.** $\begin{array}{r} 1 \\ +\ 9 \\ \hline 10 \end{array}$

Add or subtract. Then write a related fact for each.

11. $4 + 9$ **12.** $12 - 7$ **13.** $17 - 8$ **14.** $6 + 7$

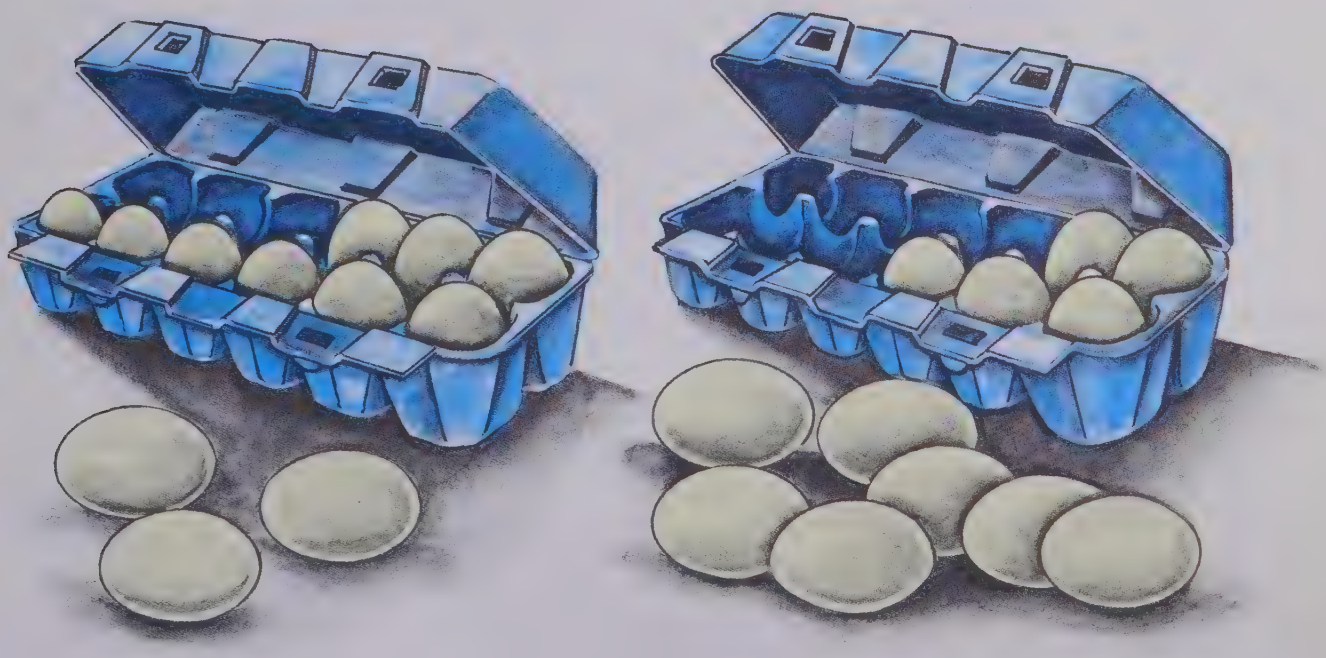
15. $9 + 9$ **16.** $17 - 9$ **17.** $7 + 8$ **18.** $11 - 4$

19. $\begin{array}{r} 14 \\ -\ 6 \\ \hline \end{array}$ **20.** $\begin{array}{r} 9 \\ +\ 3 \\ \hline \end{array}$ **21.** $\begin{array}{r} 10 \\ -\ 8 \\ \hline \end{array}$ **22.** $\begin{array}{r} 14 \\ -\ 5 \\ \hline \end{array}$ **23.** $\begin{array}{r} 4 \\ +\ 7 \\ \hline \end{array}$ **24.** $\begin{array}{r} 15 \\ -\ 9 \\ \hline \end{array}$

25. $\begin{array}{r} 13 \\ -\ 7 \\ \hline \end{array}$ **26.** $\begin{array}{r} 3 \\ +\ 8 \\ \hline \end{array}$ **27.** $\begin{array}{r} 13 \\ -\ 9 \\ \hline \end{array}$ **28.** $\begin{array}{r} 7 \\ +\ 5 \\ \hline \end{array}$ **29.** $\begin{array}{r} 8 \\ +\ 6 \\ \hline \end{array}$ **30.** $\begin{array}{r} 12 \\ -\ 8 \\ \hline \end{array}$

Write an addition sentence and a related subtraction sentence for each of these.

31. **32.**

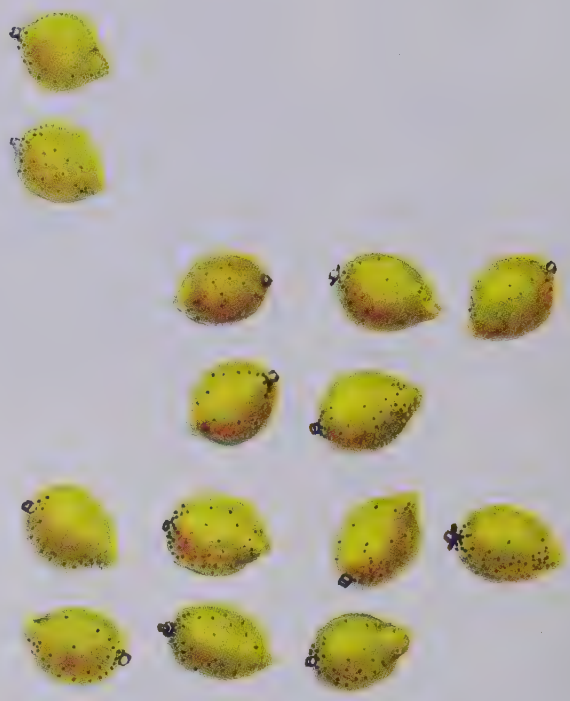


A Family of Addition and Subtraction Facts

These three numbers give us a **family** of addition and subtraction facts.

$$\begin{array}{r} 2 \\ +5 \\ \hline 7 \end{array} \qquad \begin{array}{r} 5 \\ +2 \\ \hline 7 \end{array} \qquad \begin{array}{r} 7 \\ -5 \\ \hline 2 \end{array} \qquad \begin{array}{r} 7 \\ -2 \\ \hline 5 \end{array}$$

2, 5, 7



Working Together

Give the missing numbers for each family of facts.

1. $\begin{array}{r} 3 \\ +7 \\ \hline \square \end{array}$ $\begin{array}{r} \square \\ +3 \\ \hline 10 \end{array}$ $\begin{array}{r} 10 \\ -7 \\ \hline \square \end{array}$ $\begin{array}{r} 10 \\ -\square \\ \hline 7 \end{array}$

2. $\begin{array}{r} 6 \\ +\square \\ \hline 14 \end{array}$ $\begin{array}{r} 8 \\ +\square \\ \hline 14 \end{array}$ $\begin{array}{r} \square \\ -8 \\ \hline 6 \end{array}$ $\begin{array}{r} 14 \\ -\square \\ \hline 8 \end{array}$

Give the family of facts for each set of numbers.

3. 1, 2, 3 **4.** 7, 9, 16 **5.** 6, 6, 12

One member of a family of facts is given. Give the other members.

6. $5 + 1 = 6$ **7.** $\begin{array}{r} 14 \\ -7 \\ \hline 7 \end{array}$

Complete the one member. Give the other members of the family.

8. $14 - 9 = \square$ **9.** $\begin{array}{r} 5 \\ +6 \\ \hline \end{array}$

Exercises

Write the complete family of facts.

1. $\begin{array}{r} 3 \\ +2 \\ \hline 5 \end{array}$ $\begin{array}{r} 2 \\ +3 \\ \hline 5 \end{array}$ **2.** $7 - 6 = 1$, $7 - 1 = 6$ **3.** $7 + 2 = 9$, $9 - 2 = 7$ **4.** $\begin{array}{r} 4 \\ +4 \\ \hline 8 \end{array}$

5. $\begin{array}{r} 5 \\ +8 \\ \hline 13 \end{array}$ **6.** $6 + 4 = 10$ **7.** $4 - 0 = 4$ **8.** $7 - 3 = 4$ **9.** $\begin{array}{r} 6 \\ +0 \\ \hline 6 \end{array}$

10. $\begin{array}{r} 4 \\ +7 \\ \hline \end{array}$ **11.** $\begin{array}{r} 12 \\ -5 \\ \hline \end{array}$ **12.** $\begin{array}{r} 13 \\ -6 \\ \hline \end{array}$ **13.** $\begin{array}{r} 9 \\ +9 \\ \hline \end{array}$ **14.** $\begin{array}{r} 15 \\ -8 \\ \hline \end{array}$ **15.** $\begin{array}{r} 3 \\ +9 \\ \hline \end{array}$

Families of Facts

These two numbers are part of two families of facts.

5, 8

One family uses 5, 8, and 13 because $5 + 8 = 13$.

$$\begin{array}{r} 5 \\ +\ 8 \\ \hline 13 \end{array} \qquad \begin{array}{r} 8 \\ +\ 5 \\ \hline 13 \end{array} \qquad \begin{array}{r} 13 \\ -\ 8 \\ \hline 5 \end{array} \qquad \begin{array}{r} 13 \\ -\ 5 \\ \hline 8 \end{array}$$

One family uses 5, 8, and 3 because $8 - 5 = 3$.

$$\begin{array}{r} 8 \\ -5 \\ \hline 3 \end{array} \qquad \begin{array}{r} 8 \\ -3 \\ \hline 5 \end{array} \qquad \begin{array}{r} 3 \\ +5 \\ \hline 8 \end{array} \qquad \begin{array}{r} 5 \\ +3 \\ \hline 8 \end{array}$$

Working Together

For 3 and 6,

1. give their sum.
2. give their difference.
3. give two families of facts.

For 8 and 4,

4. give their sum.
5. give their difference.
6. give two families of facts.

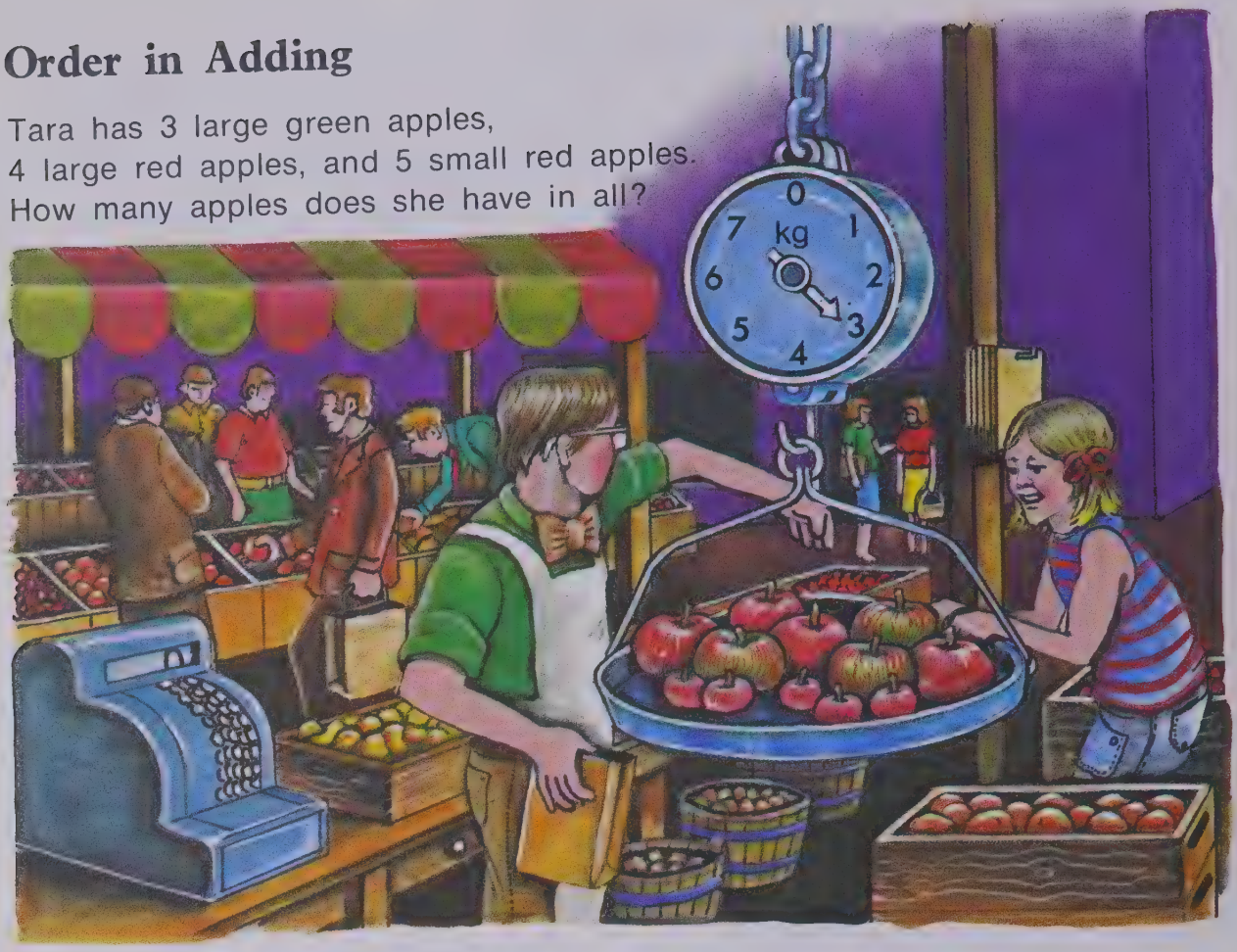
Exercises

Write two families of facts for each pair of numbers.

1. 4 and 5
2. 4 and 9
3. 1 and 4
4. 5 and 9
5. 1 and 5
6. 5 and 6
7. 3 and 3
8. 6 and 9
9. 3 and 8
10. 4 and 7
11. 7 and 5
12. 6 and 6

Order in Adding

Tara has 3 large green apples,
4 large red apples, and 5 small red apples.
How many apples does she have in all?



Add $3 + 4 + 5$ in any order.

Add left to right.

3 large and
4 large make
7 large apples.

$3 + 4 + 5$

$7 + 5$

12

Add right to left.

$3 + 4 + 5$

$3 + 9$

12

4 red and
5 red make
9 red apples.

Add down.

$$\begin{array}{r} 3 \\ 4 \\ +\ 5 \\ \hline 12 \end{array}$$

7

Add up.

$$\begin{array}{r} 3 \\ 4 \\ +\ 5 \\ \hline 12 \end{array}$$

9

Tara has 12 apples in all.

Working Together

Give the missing numbers.

1. $5 + 3 + 4$ $\quad 5 + 3 + 4$

$\square + 4 \quad 5 + \square$

$\square \quad \square$

2. $2 + 4 + 4 \quad 2 + 4 + 4$

$2 + \square \quad \square + 4$

$\square$

Give the sums.

Add these left to right.	Add these right to left.
3. $6 + 1 + 2$	**4.** $6 + 1 + 2$
5. $4 + 5 + 1$	**6.** $4 + 5 + 1$
7. $3 + 0 + 4$	**8.** $3 + 0 + 4$

Add down.	Add up.
9. 1 4 + 8	**10.** 1 4 + 8
11. 3 2 + 5	**12.** 3 2 + 5

Exercises

Add left to right or right to left.

1. $7 + 2 + 6$	**2.** $2 + 3 + 6$	**3.** $4 + 6 + 2$	**4.** $5 + 2 + 5$
5. $4 + 2 + 7$	**6.** $1 + 7 + 2$	**7.** $1 + 2 + 3$	**8.** $5 + 0 + 2$

Add down or add up.

9. 2 2 + 7	**10.** 1 6 + 3	**11.** 4 4 + 4	**12.** 3 4 + 5	**13.** 4 4 + 6	**14.** 6 3 + 4
15. 4 3 + 5	**16.** 5 1 + 7	**17.** 2 6 + 0	**18.** 9 7 + 1	**19.** 5 5 + 5	**20.** 4 1 + 7

Solve.

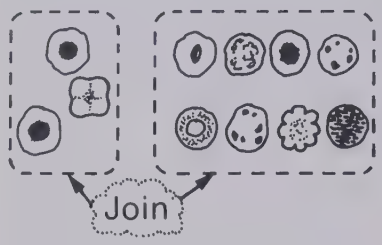
21. 9 red apples.
1 green apple.
6 yellow apples.
How many apples in all?

22. 7 apples for Larry.
2 apples for Marcia.
7 apples for Rene.
How many apples in all?

Thinking of a Picture

Thinking of a picture for a problem can help you write a number sentence to solve the problem. Study these examples.

John had 3 cookies.
He bought 8 cookies.
How many cookies does he have in all?



Use addition when you join two groups.

$3 + 8 = 11$

11 cookies in all.

Jean had 8 cookies.
She ate 3 cookies.
How many cookies are left?

Use subtraction when you take away.

$8 - 3 = 5$

5 cookies are left.

Jan ate 8 cookies.
Ed ate 3 cookies.
How many more did Jan eat?

Use subtraction when you compare.

$8 - 3 = 5$

Jan ate 5 more than Ed.

Choose the number sentence that fits each problem.

1. I had 6 tickets.
I sold 2 tickets.
How many tickets do I have left?

$6 + 2 = \square$
$6 - 2 = \square$

2. I have 11 dimes.
You have 6 dimes.
How many more dimes do I have?

$11 + 6 = \square$
$11 - 6 = \square$

3. I ate 9 gumdrops.
You ate 6 gumdrops.
How many gumdrops did we eat in all?

$9 + 6 = \square$
$9 - 6 = \square$

Write a number sentence and answer each question.

4. I had 10 records.
I broke 2 records.
How many records are left?

5. I have 6 red marbles and 4 green marbles.
How many marbles do I have in all?

6. I made 15 cupcakes.
I gave away 8.
How many cupcakes are left?

7. I used 6 stamps.
You used 13 stamps.
How many more did you use?

8. I saw 5 robins.
You saw 6 blue jays.
How many birds did we see in all?

PROBLEM SOLVING

Checking Up

Add.

1. $3+2$ **2.** $1+6$ **3.** $3+3$ **4.** $7+1$

5. $9+9$ **6.** $5+8$ **7.** $8+7$ **8.** $4+8$

9. $\begin{array}{r} 3 \\ +5 \\ \hline \end{array}$ **10.** $\begin{array}{r} 2 \\ +8 \\ \hline \end{array}$ **11.** $\begin{array}{r} 3 \\ +4 \\ \hline \end{array}$ **12.** $\begin{array}{r} 2 \\ +4 \\ \hline \end{array}$ **13.** $\begin{array}{r} 0 \\ +9 \\ \hline \end{array}$ **14.** $\begin{array}{r} 4 \\ +5 \\ \hline \end{array}$

15. $\begin{array}{r} 6 \\ +7 \\ \hline \end{array}$ **16.** $\begin{array}{r} 8 \\ +5 \\ \hline \end{array}$ **17.** $\begin{array}{r} 9 \\ +6 \\ \hline \end{array}$ **18.** $\begin{array}{r} 9 \\ +3 \\ \hline \end{array}$ **19.** $\begin{array}{r} 3 \\ 4 \\ +5 \\ \hline \end{array}$ **20.** $\begin{array}{r} 1 \\ 6 \\ +9 \\ \hline \end{array}$

Subtract.

21. $10-8$ **22.** $4-2$ **23.** $8-0$ **24.** $9-3$

25. $13-6$ **26.** $15-6$ **27.** $11-8$ **28.** $11-3$

29. $\begin{array}{r} 7 \\ -5 \\ \hline \end{array}$ **30.** $\begin{array}{r} 6 \\ -2 \\ \hline \end{array}$ **31.** $\begin{array}{r} 5 \\ -3 \\ \hline \end{array}$ **32.** $\begin{array}{r} 7 \\ -1 \\ \hline \end{array}$ **33.** $\begin{array}{r} 10 \\ -4 \\ \hline \end{array}$ **34.** $\begin{array}{r} 9 \\ -9 \\ \hline \end{array}$

35. $\begin{array}{r} 12 \\ -4 \\ \hline \end{array}$ **36.** $\begin{array}{r} 13 \\ -9 \\ \hline \end{array}$ **37.** $\begin{array}{r} 12 \\ -6 \\ \hline \end{array}$ **38.** $\begin{array}{r} 14 \\ -8 \\ \hline \end{array}$ **39.** $\begin{array}{r} 11 \\ -5 \\ \hline \end{array}$ **40.** $\begin{array}{r} 14 \\ -6 \\ \hline \end{array}$

Subtract. Then write a related addition fact.

41. $7-4$ **42.** $17-9$

Add. Then write a related subtraction fact.

43. $6+6$ **44.** $7+8$

Write a number sentence and answer each question.

45. 5 green apples.
12 red apples.
How many more red apples?

46. 6 bananas.
9 oranges.
How many pieces of fruit?

47. Buy 10 plums.
Eat 3 plums.
How many are left?

48. Phil ate 8 grapes. Ellen ate 9 grapes. How many grapes did they eat in all?

49. 7 lemons.
Buy 4 more.
How many lemons in all?

50. 14 limes.
9 grapefruit.
How many fewer grapefruit?

2 NUMERATION

Numbers to 99

Numbers help us line up,
Numbers tell who's best.

They tell us what the day is,
They tell us when to rest.

Numbers show how many,
Numbers show the cost.

They tell us to enjoy ourselves,
They help us when we're lost.

Numbers tell how long it takes,
Numbers tell how far.

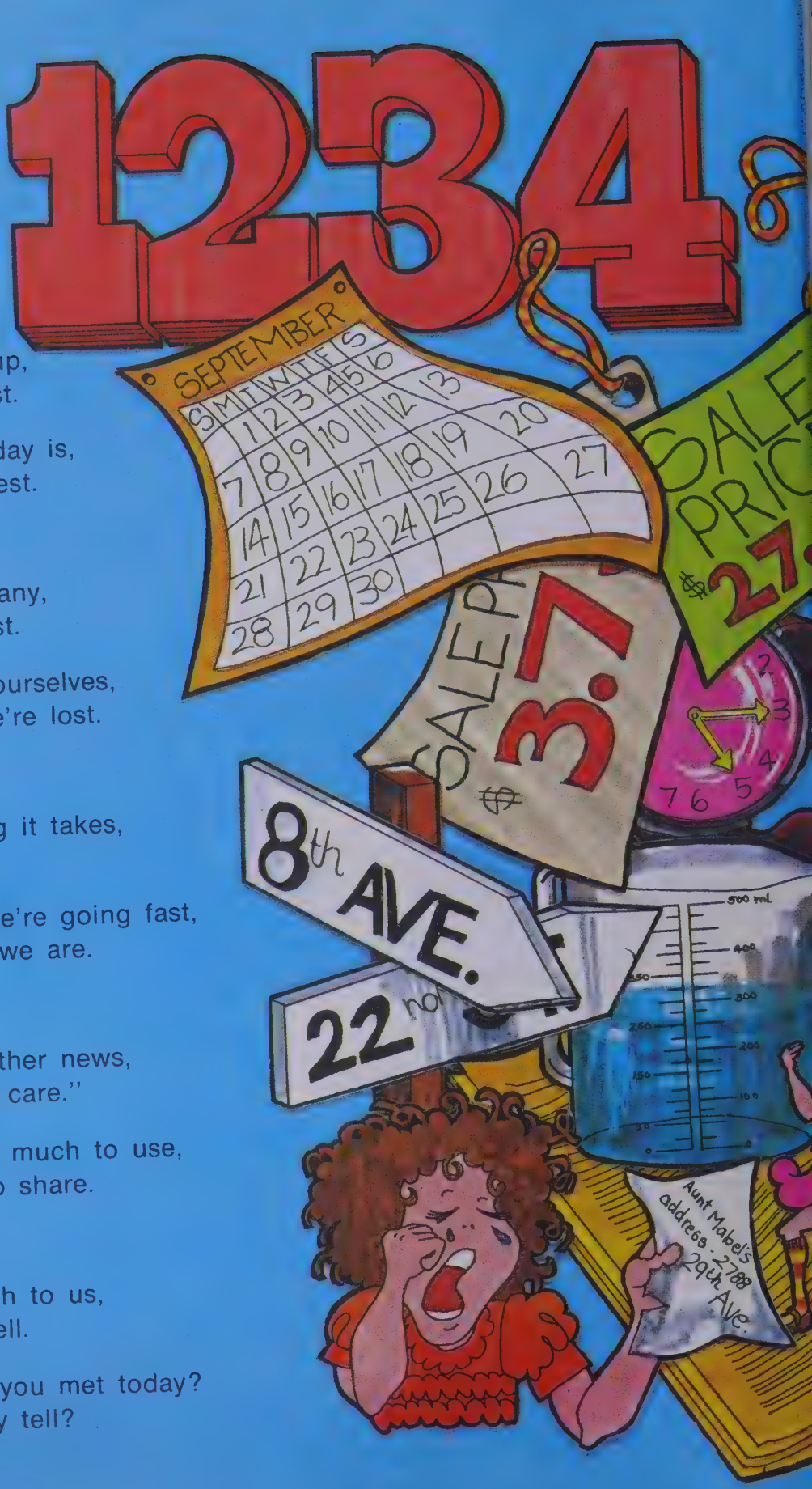
They slow us when we're going fast,
They show us where we are.

Numbers tell the weather news,
Numbers warn "Take care."

They tell us just how much to use,
They show us how to share.

Numbers say so much to us,
Numbers serve us well.

What numbers have you met today?
What stories did they tell?



Working Together

Count

1. from 1 to 10. **2.** from 11 to 20.
3. from 23 to 28. **4.** from 56 to 63.

Show the rest of this table to 99.

5.

eleven	11
twenty-two	22
thirty-three	33
forty-four	44

Write the numerals.

6. forty-seven **7.** thirteen

Write the words.

8. 52 **9.** 18 **10.** 70

Exercises

Write the numerals

1. from 31 to 37. **2.** from 65 to 76.
3. from 7 to 20. **4.** from 35 to 54.

Write the numerals.

5. eighty-four **6.** thirty-nine
7. fifteen **8.** ninety
9. twenty-six **10.** twelve
11. seventy-one **12.** fifty-seven

Write the words.

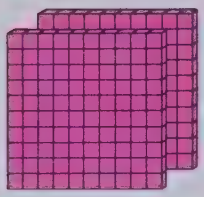
13. 63 **14.** 14 **15.** 30
16. 11 **17.** 95 **18.** 44
19. 28 **20.** 87 **21.** 78

Numbers to 999

This shows one hundred.

100

This shows two hundreds.



200

This shows three tens and six ones or thirty-six.

36

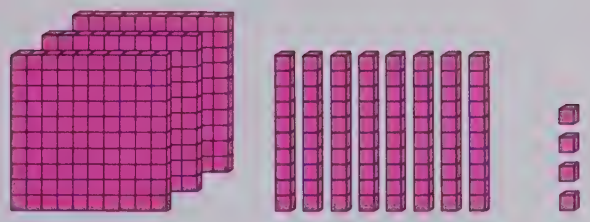
This shows two hundred thirty-six.

236

Working Together

For this picture,

1. how many hundreds?
2. how many tens?
3. how many ones?
4. how many in all?



In the numeral 308,

5. how many hundreds? **6.** how many tens? **7.** how many ones?

Write the numerals.

8. six hundred **9.** four hundred thirty-five **10.** eight hundred nine

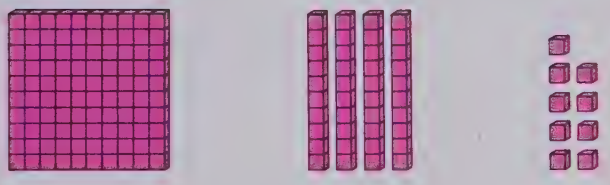
Write the words.

11. 500 **12.** 840 **13.** 603 **14.** 278

Exercises

For this picture,

1. how many hundreds?
2. how many tens?
3. how many ones?
4. how many in all?



Use ▭ for hundreds, ▯ for tens, □ for ones.

Draw pictures to show each of these.

5. 750 **6.** 400 **7.** 816 **8.** 698 **9.** 765 **10.** 577

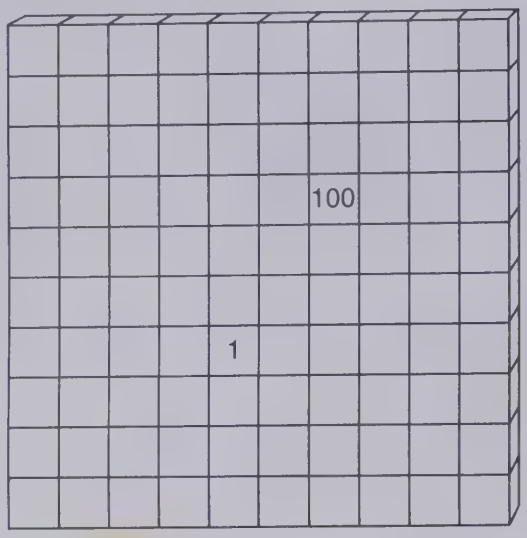
Write the numerals.

11. two hundred nineteen **12.** nine hundred eighty-two
13. five hundred **14.** three hundred sixty
15. seven hundred one **16.** one hundred eleven

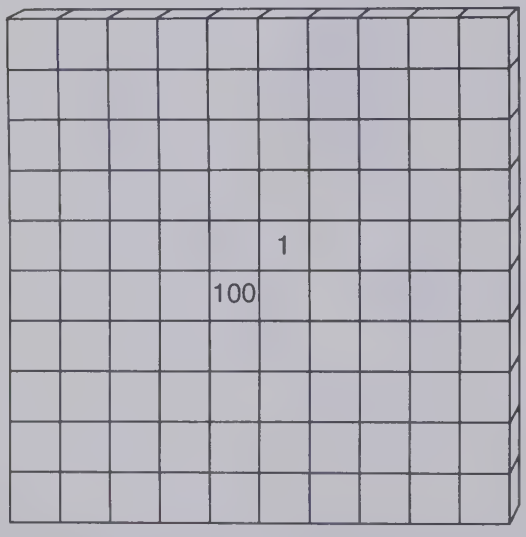
Write the words.

17. 783 **18.** 110 **19.** 412 **20.** 203 **21.** 900 **22.** 344

Place tracing paper over these 100 blocks.



1. Start at 1 and draw a path to 100. Cross *each* block just one time. (Move left or right or up or down only. No diagonal moves allowed.)
2. Now try this one.



try this

Expanded Form

Both flags show the number 538.

Working Together

Show each number in **expanded form.**

Example: $538 = 500 + 30 + 8$

1. 257
2. 780
3. 403

Show each number in **standard form.**

Example: $300 + 20 + 1 = 321$

4. $800 + 10 + 7$
5. $100 + 6$
6. $600 + 40$
7. $70 + 5$

Exercises

Write each number in expanded form.

1. 675	**2.** 376	**3.** 930	**4.** 101	**5.** 745
6. 540	**7.** 417	**8.** 221	**9.** 884	**10.** 906

Write each number in standard form.

11. $400 + 20 + 7$	**12.** $900 + 10 + 6$	**13.** $300 + 30$
14. $800 + 2$	**15.** $200 + 70$	**16.** $500 + 5$

Write each number in expanded form.

Example: For eight hundred forty-nine, write $800 + 40 + 9$

17. three hundred eighty-two	**18.** six hundred fifty
19. seven hundred three	**20.** two hundred nine
21. one hundred ninety	**22.** five hundred twelve

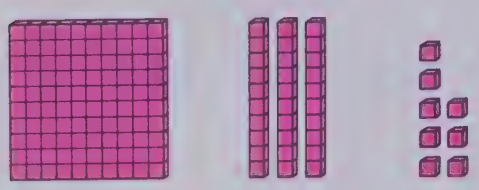
Write the words.

Example: For $200 + 70 + 6$, write two hundred seventy-six

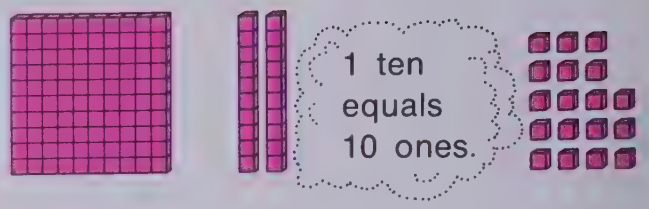
23. $700 + 30 + 2$	**24.** $500 + 20$	**25.** $600 + 8$
26. $100 + 60$	**27.** $300 + 10 + 1$	**28.** $400 + 40 + 4$

Regrouping

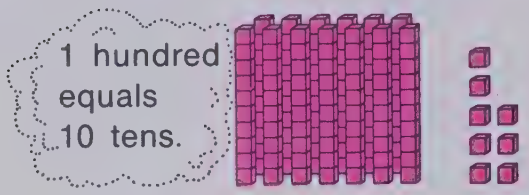
A number can be shown many ways.
Here are some ways to show 138.



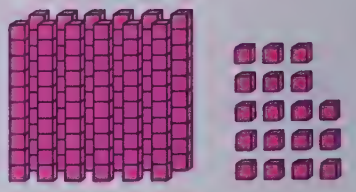
1 hundred 3 tens 8 ones



1 hundred 2 tens 18 ones



13 tens 8 ones



12 tens 18 ones

Working Together

Regroup and show each number in standard form.

1.

hundreds	tens	ones
4	3	15

2.

hundreds	tens	ones
7	14	8

3.

hundreds	tens	ones
3	13	17

Regroup to show 10 more ones.

Examples: For 625, show $6\overset{1}{2}\overset{15}{\not5}$.

For 407, think 40 tens, 7 ones and show $\overset{3}{\not4}\overset{9}{0}\overset{17}{\not7}$.

4. 572 **5.** 306 **6.** 200

Regroup to show 10 more tens.

7. 852 **8.** 204 **9.** 400

Regroup to show 10 more ones.
Then regroup to show 10 more tens.

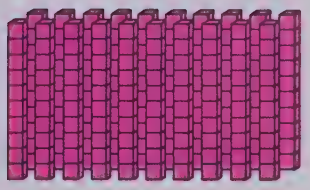
Example: For 625, show $6\overset{1}{2}\overset{15}{\not5}$. Then show $\overset{\ }{\not6}\overset{11}{\not2}\overset{15}{\not5}$.

10. 736 **11.** 214 **12.** 120

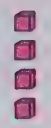
Here are some ways to show 204.

2 hundreds

4 ones



20 tens

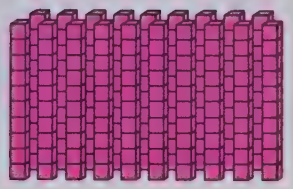


4 ones

1 hundred

9 tens

14 ones



19 tens

14 ones

Exercises

Write each number in standard form.

1.

hundreds	tens	ones
5	4	13

2.

hundreds	tens	ones
6	10	7

3.

hundreds	tens	ones
1	9	18

4.

hundreds	tens	ones
5	11	14

5.

hundreds	tens	ones
4	16	0

6.

hundreds	tens	ones
8	15	10

Regroup to show 10 more ones.

7. 534 **8.** 401 **9.** 650 **10.** 103 **11.** 212 **12.** 305

Regroup to show 10 more tens.

13. 349 **14.** 170 **15.** 805 **16.** 267 **17.** 508 **18.** 756

Regroup to show 10 more ones.
Then regroup to show 10 more tens.

19. 485 **20.** 860 **21.** 613 **22.** 192 **23.** 940 **24.** 771

Comparing and Ordering Numbers

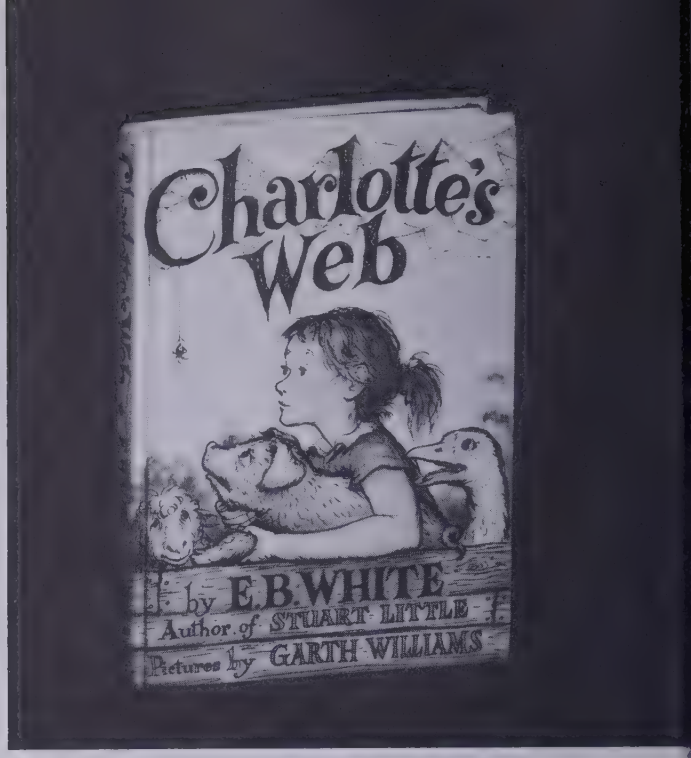
Charlotte's Web has 184 pages.
There are 162 pages in
Charlie and the Chocolate Factory.
Which book has more pages?

First, look at the hundreds place.
184 shows 1 hundred.
162 shows 1 hundred.

Next, look at the tens place.
184 shows 8 tens.
162 shows 6 tens.

8 is greater than 6, so
184 is greater than 162.

Charlotte's Web has more pages.



$184 > 162$

The $>$ stands for **is greater than.**

Working Together

Where are the digits first different—in the hundreds, tens, or ones place?

1.

455
459

2.

386
586

Which is greater,

3. 5 or 8?

4. 572 or 872?

5. 783 or 753?

6. 328 or 325?

Use $>$ or $<$ to show which is greater or which is less.

Example: $173 < 221$ shows 173 **is less than** 221.

7. 762 ◯ 739 **8.** 225 ◯ 86 **9.** 550 ◯ 553

Show each group of numbers in order from least to greatest.

10.

157
75
175

11.

277
222
272

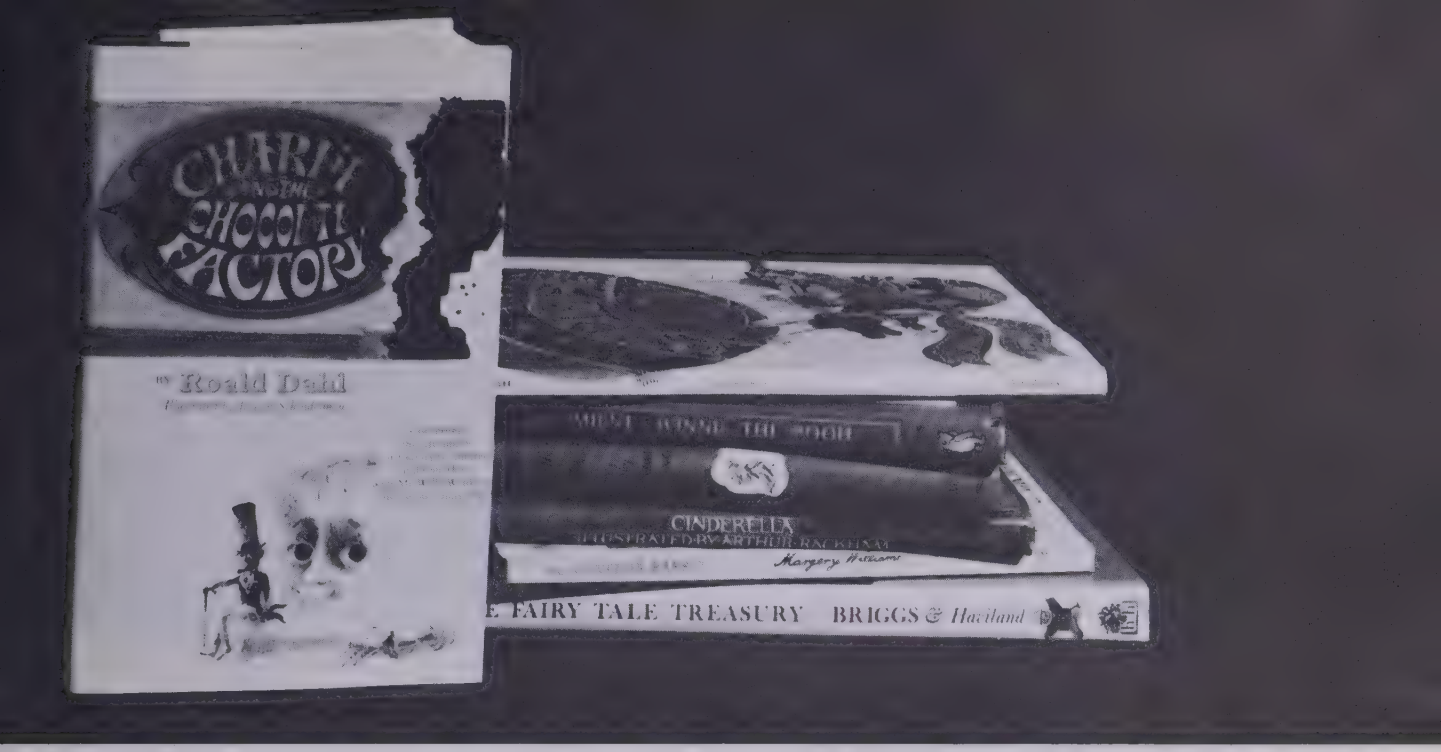
12.

434
444
343

Give the numbers between

13. 30 and 40. **14.** 177 and 185.

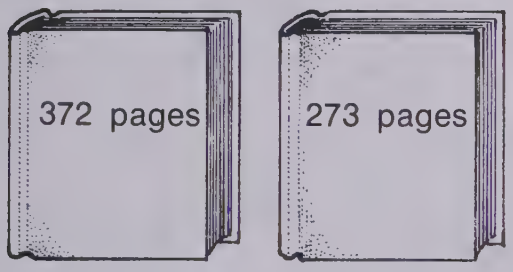
15. 508 and 521. **16.** 96 and 110.



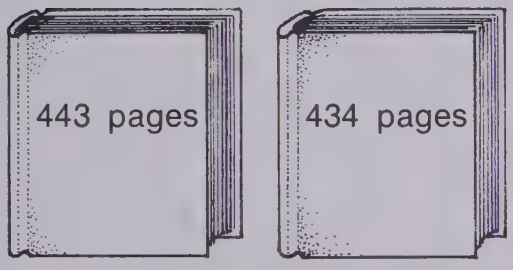
Exercises

Which book has more pages?

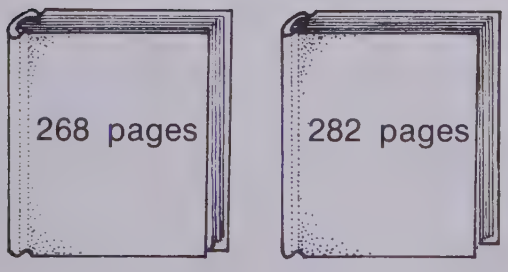
1.



2.



3.



Copy the greater number.

4. 59 or 502 **5.** 819 or 891

6. 429 or 427 **7.** 708 or 608

Write $<$ or $>$ to make a true statement.

8. 323 ◯ 329 **9.** 753 ◯ 733

10. 369 ◯ 669 **11.** 968 ◯ 908

12. 519 ◯ 512 **13.** 407 ◯ 708

List the numbers in order from least to greatest.

14.

332
223
323
232
322
233

15.

411	140
110	441
404	114
41	141
414	401
104	144

List the numbers between

16. 556 and 565. **17.** 194 and 212.

Practice

Complete the number patterns.

1. 0, 1, 2, 3, 4

2. 40, ▒, ▒, ▒, 80

3. 300, ▒, ▒, ▒, 700

4. 11, ▒, ▒, ▒, 15

5. ▒, ▒, ▒, 53, 63

6. ▒, ▒, ▒, 874, 974

7. 20, 30, ▒, ▒, ▒

8. 435, 445, ▒, ▒, ▒

9. 228, 328, ▒, ▒, ▒

10. ▒, ▒, ▒, 376, 377

11. 0, 2, 4, 6, 8, ▒, ▒, ▒, ▒, ▒

12. 1, 3, 5, 7, 9, ▒, ▒, ▒, ▒, ▒

13. 5, 10, 15, ▒, 25, ▒, 35, ▒, 45, ▒

14. ▒, 40, ▒, 50, 55, 60, ▒, 70, ▒, 80

15. 25, 50, 75, ▒, ▒, ▒, ▒, ▒, ▒, ▒

16. 84, ▒, 88, ▒, ▒, ▒, ▒, 98, ▒, ▒

17. ▒, 75, ▒, 85, ▒, 95, ▒, ▒, ▒, ▒

Copy and complete the pattern squares.
Show number patterns across and down.

18.

311	312	?
321	322	?
?	?	?

19.

?	229	329
130	230	?
?	?	?

20.

650	?	670
?	?	?
850	?	870

21.

386	?	586
?	496	596
?	?	?

22.

88	98	?
89	?	?
?	?	?

***23.**

442	?	?
?	543	?
?	?	644

Naming Amounts of Money

Scrooge has to pay his clerk
his wages for the week—
two dollars and forty-three cents.

4 dimes 3 pennies 43 cents

2 dollars 4 dimes 3 pennies

2 dollars and 43 cents

Exercises

Copy and complete each table.

	Dimes	Pennies	Amount
1.	2	7	27¢
2.	4	6	? ¢
3.	?	?	32¢
4.	0	3	? ¢
5.	?	?	60¢

	Dollars	Dimes	Pennies	Amount
6.	3	1	5	$ 3.15
7.	4	2	0	$?
8.	?	?	?	$1.76
9.	?	?	?	$6.08
10.	5	2	5	$?

Write each amount using numerals.

11. fifty-two cents

12. four dollars and eleven cents

13. eighteen cents

14. three dollars and ninety-five cents

Write each amount using words.

15. 99¢

16. 2¢

17. 40¢

18. 63¢

19. $4.11

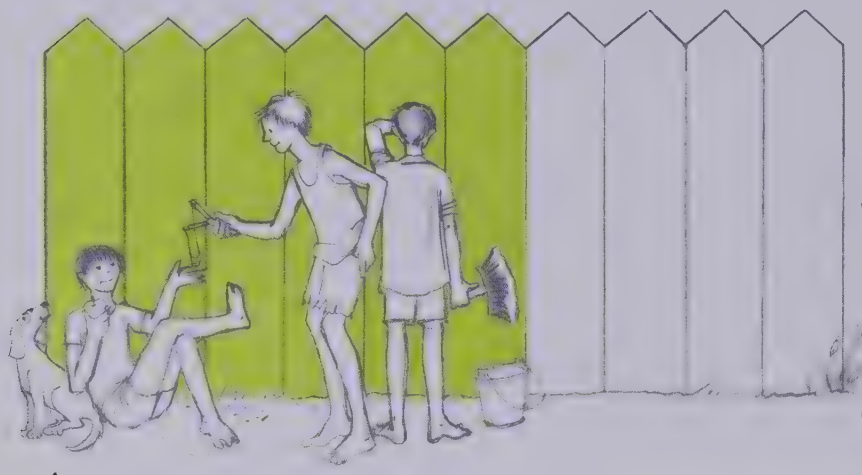
20. $7.50

21. $2.09

22. $0.95

Naming Fractions Less Than 1

Tom tricked his friends into painting the fence.



How much have they painted so far?

4 parts painted.
10 equal parts.

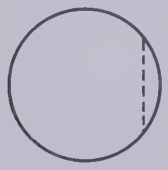
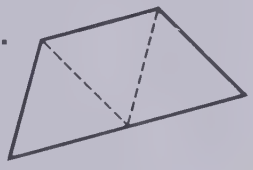
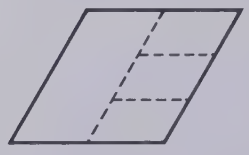
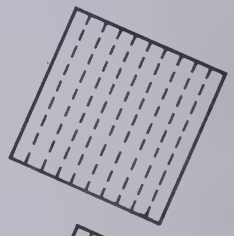
Write $\frac{4}{10}$

So far, they have painted **4 tenths** of the fence.

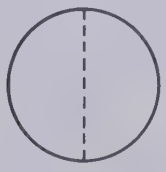
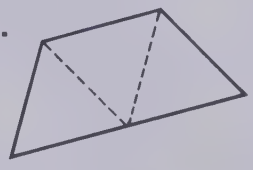
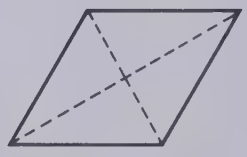
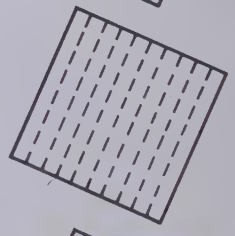
$\frac{4}{10}$ is a **fraction.** Fractions tell how much of something is special.

Working Together

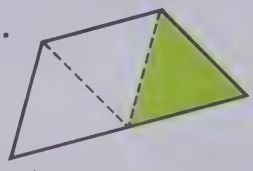
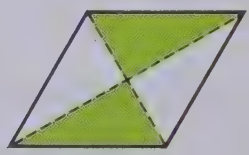
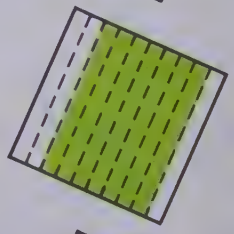
Which of these show equal parts?

1. 
2. 
3. 
4. 

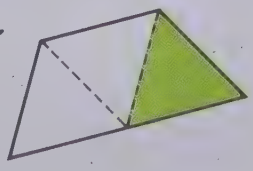
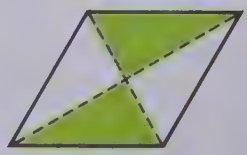
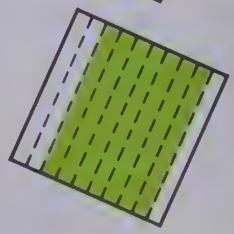
How many equal parts in each of these?

5. 
6. 
7. 
8. 

How many of the equal parts are shaded?

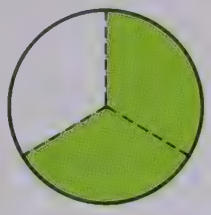
9.
10. 
11. 
12. 

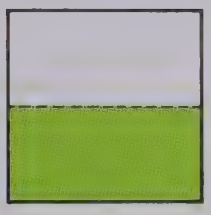
Give the fraction that shows how much is shaded.

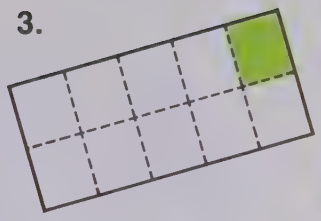
13.
14. 
15. 
16. 

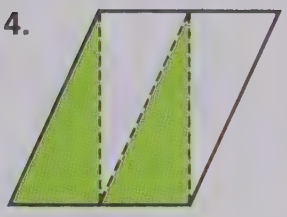
Exercises

Write the fraction that shows how much is shaded.

1. 

2. 

3. 

4. 

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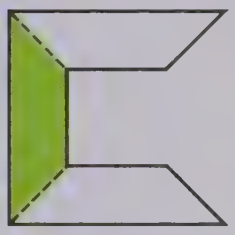
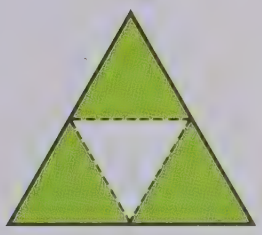
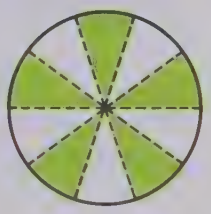
6. 

7. 

8. 

Draw each shape. Shade to show the fraction.

9. $\frac{1}{2}$

10. $\frac{2}{10}$

11. $\frac{3}{4}$

12. $\frac{2}{3}$

Draw each shape. Show the correct number of equal parts. Then shade to show the fraction.

13. $\frac{1}{2}$

14. $\frac{2}{4}$

15. $\frac{1}{3}$

***16.** $\frac{1}{4}$

Write the fraction.

17. three-tenths

18. one-half

19. two-thirds

20. three-fourths

Write the words.

21. $\frac{2}{4}$

22. $\frac{7}{10}$

23. $\frac{1}{3}$

24. $\frac{1}{2}$

25. $\frac{4}{10}$

26. $\frac{1}{4}$

Naming Fractions Greater Than 1

Dormouse and the March Hare each had one cup of tea.
The Mad Hatter had one-fourth of a cup of tea.

2 whole cups

1 full part
4 equal parts

The number

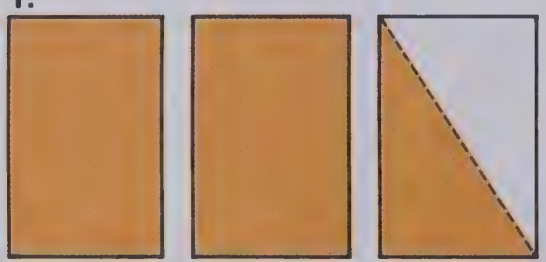
$$2\frac{1}{4}$$

(two and one-fourth)
shows how many
cups of tea in all.

Exercises

Write the number that shows how much is shaded.

1.



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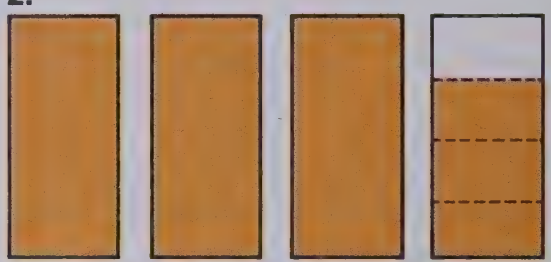
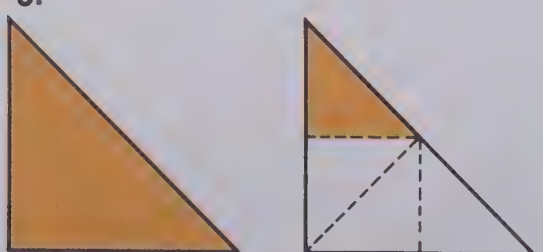


3.

4.

5.



6.

7. Draw 4 ◯ 's.
Shade $3\frac{2}{3}$.

8. Draw 2 □ 's.
Shade $1\frac{3}{4}$.

9. Draw 3 ⬡ 's.
Shade $2\frac{1}{2}$.

10. Draw 2 ▭ 's.
Shade $1\frac{1}{3}$.

Write the numbers.

11. two and one-fourth
12. five and six-tenths
13. one and two-fourths
14. seven and nine-tenths
15. three and one-third
16. eight and one-half

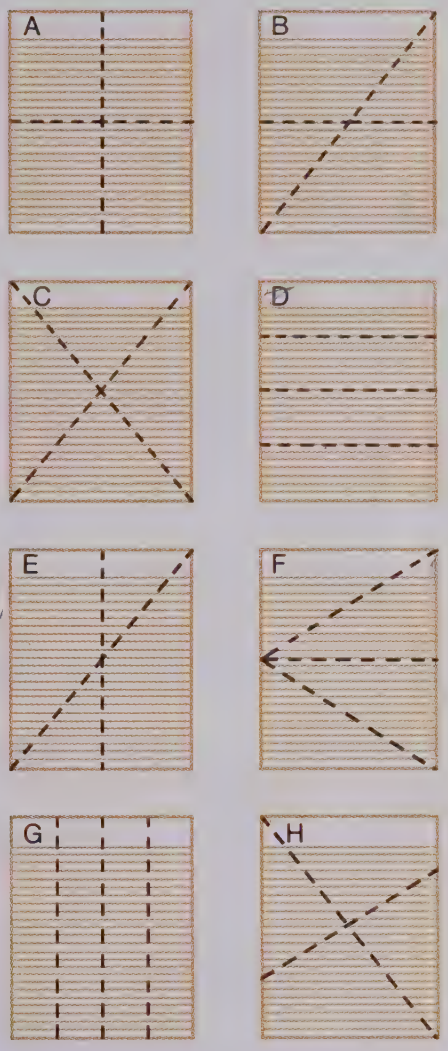
Write the words.

17. $1\frac{2}{3}$ **18.** $4\frac{2}{10}$ **19.** $3\frac{5}{10}$

20. $9\frac{1}{2}$ **21.** $6\frac{3}{4}$ **22.** $2\frac{1}{10}$

1. Can you show 3 ways to fold a sheet of paper in half?

The sheets of paper below were folded two times each.



Which sheets were

2. folded in half, unfolded, then folded in half again?

3. folded in half, then folded in half again without unfolding?

try this

Ordinal Numbers

The princess looked under 11 mattresses and found a pea. The prince had hidden it under the eleventh (11th) mattress.

Working Together

1. Show this chart to 31.

2. Number the months in order.

October November February
December January April
September May
June March July August

Exercises

Write a new sentence.
Replace "first" with "second".
Make the other changes needed.

1. January is the first month of the year.

2. Sunday is the first day of the week.

Write a sentence about what comes next.

3. Tuesday is the third day of the week.

4. Frank had his eighth birthday this year.

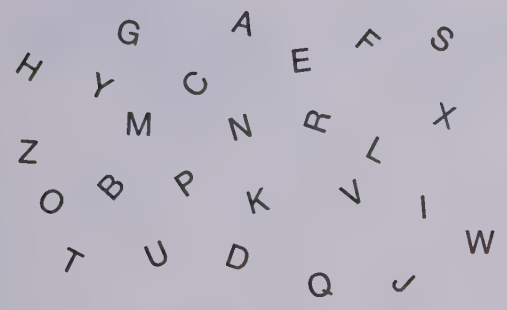
Write a sentence about what came before.

5. Lucy reached second base.

6. Friday is the sixth day of the week.

Number the letters of the alphabet in order.

7.



Write using numerals.

8. twentieth

9. fifteenth

10. thirty-first

Write the words.

11. 12th

12. 22nd

13. 33rd

Some or all of these bars can be colored to show the digits from zero to nine.

Here's how to color the bars to show 2.

Draw 10 of these on a sheet of paper.

Color some or all of the bars to show the numbers from 0 to 9.

try this

Using a Calendar

A calendar page shows

the year,

the month,

the day of the week,

the date.

Halloween, October 31,
was on a Wednesday in the year 1894.

Working Together

Look at the calendar in your room.

1. What year is it?
2. What month is it?
3. What day of the week is it?
4. What is today's date?
5. Which day is the twenty-seventh (27th)?
6. What is the date of the third Tuesday?
7. What is the date one week from tomorrow?

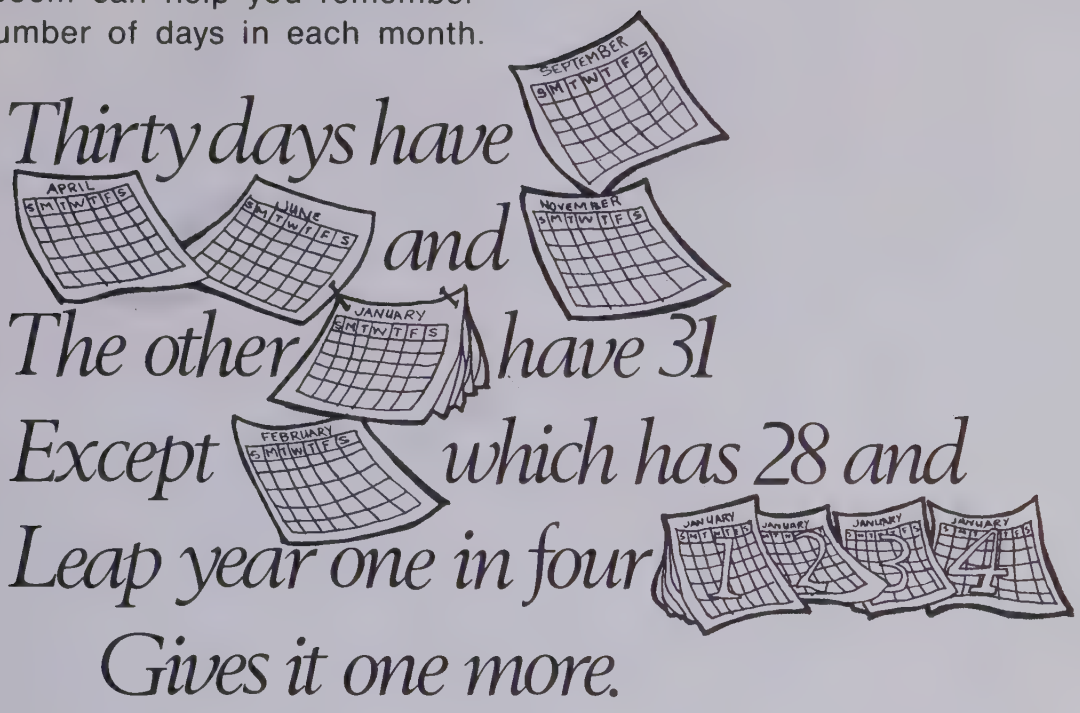
Exercises

Use the calendar page for this month.

1. What day is tomorrow?
2. What is tomorrow's date?
3. What day was yesterday?
4. What was yesterday's date?
5. How many Wednesdays are there?
6. How many Saturdays are there?
7. Which day is the seventeenth (17th)?
8. Write the date of the second Friday.

A calendar for the year shows the 12 months of the year.

This poem can help you remember the number of days in each month.



Use the calendar for this year.

9. What month comes next?

10. What month just passed?

11. What day was it one week ago?

12. What was the date one week ago?

13. What day will it be in four weeks?

14. What will be the date in four weeks?

15. Name your favorite day (Sunday, or Monday, or Tuesday, and so on).

16. Count the number of times your favorite day is the first day of a month.

17. Name your favorite month.

18. How many days are in your favorite month?

Draw a calendar page of your favorite month.
Show your favorite day as the first day.
Then answer these questions.

19. On your calendar page, what day is the fifteenth (15th)?

20. the twenty-third (23rd)?

21. the tenth (10th)?

22. the fourth (4th)?

23. the nineteenth (19th)?

24. the twenty-seventh (27th)?

25. the seventh (7th)?

Reading a Clock

The **dial clock** and the **digital clock** both show the same time.

The time is one o'clock.

The time can be shown like this 1:00

Working Together

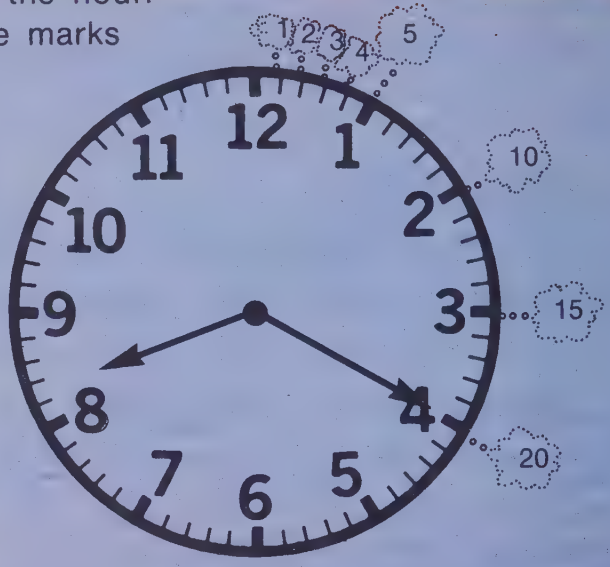
On a dial clock, the short hand shows the hour. The long hand shows the minutes. The marks along the edge are the minute marks.

How many minutes does it take for the minute hand to move

1. from one mark to the next?
2. from one numeral to the next?
3. one time around the clock?

To tell the time, read the hour, then read the number of minutes.

The hour hand has just passed 8. The minute hand shows 20 minutes. The time is 8:20 (eight twenty).

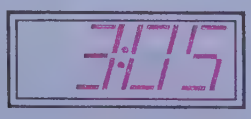


These two clocks show the same time. What time is it?

4.

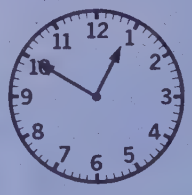
Show the time on a dial clock. Write the time in words.

6.



Show this time on a digital clock. Write the time in words.

5.



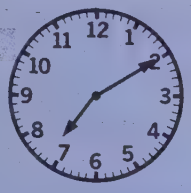
What time is it?

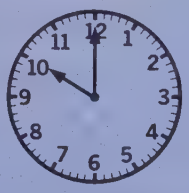
7.

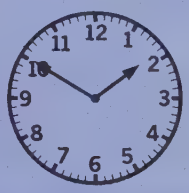
8.

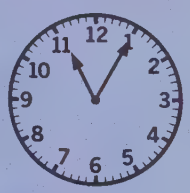
Exercises

Draw digital clocks to show these times.

1. 

2. 

3. 

4. 

Draw dial clocks to show these times.

5. 3:15

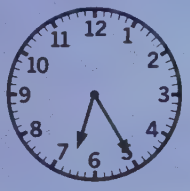
6. 5:05

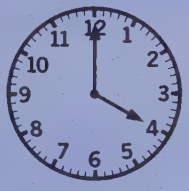
7. 12:30

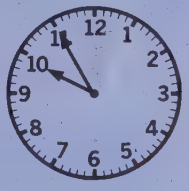
8. 8:00

Write the time using numerals.

Example: For write 3:40

9. 

10. 

11. 

12.

Write the time using words.

Example: For 7:35, write **seven thirty-five**

13. 8:20

14. 1:55

15. 9:00

16. 2:05

Solving Problems Without Using Numbers

Numbers are useful for solving problems, but sometimes they are not needed. Without using numbers, how could you tell

1. which friend is taller?
2. which book has more pages?
3. which doll is heavier?
4. who is younger?
5. which bag has more marbles?
6. if there is a hat for each person?
7. which friend lives farther away?
8. which bottle holds more water?
9. which cup has colder lemonade?
10. which blanket is larger?
11. which string has more beads?
12. who rides faster on a bicycle?
13. if you need a coat for going outside?
14. which hole is deeper?
15. where to cut a ribbon to get 2 equal pieces?
16. who is shortest in the class?
17. who can take the longest step?
18. when it is time for lunch?
19. if the cookies are being shared equally?
20. which gerbil eats the most?
21. when summer is over?
22. who finishes first?

PROBLEM SOLVING

Checking Up

Write the numerals.

1. three hundred fifty-six
2. six hundred
3. two hundred three
4. one hundred eighty
5. two-thirds
6. three and one-fourth

Write the words.

7. 412 **8.** 705 **9.** $\frac{3}{10}$ **10.** $3\frac{1}{2}$

Write the amounts using numerals.

11. thirty-nine cents
12. two dollars and four cents

Write the amounts using words.

13. 42¢ **14.** $1.79

Write each number in expanded form.

15. 547 **16.** 208

Write each number in standard form.

17. 400 + 60 + 2 **18.** 300 + 20

Regroup and write each number in standard form.

19.

hundreds	tens	ones
	13	7

20.

hundreds	tens	ones
2	9	14

Write > or < to make a true statement.

21. 373 ◯ 371 **22.** 402 ◯ 398 **23.** 256 ◯ 276

List the numbers in order from least to greatest.

24. 364, 436, 634, 463, 346, 643

Write the fraction that shows how much is shaded.

25.

26.

Write the time using numerals.

27.

Draw a dial clock and show this time.

28. 9:25

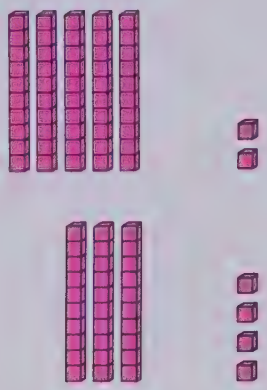
29. What day is today?

30. What month is it now?

3 ADDITION

No Regrouping

Add 52 and 34.

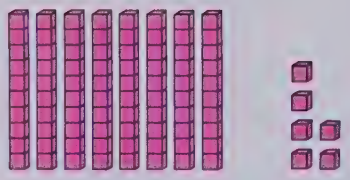


	tens	ones
	5	2
+	3	4

Show 52 and 34 with their tens and ones lined up in **vertical form.**

	tens	ones
	5	2
+	3	4
		6

Add the ones.



	tens	ones
	5	2
+	3	4
	8	6

Add the tens.

The sum 52 + 34 is 86.

Add 215 and 364.

Add ones.

	2	1	5
+	3	6	4
			9

Add tens.

	2	1	5
+	3	6	4
		7	9

Add hundreds.

	2	1	5
+	3	6	4
	5	7	9

215 plus 364 equals 579.

Working Together

Line up the hundreds, tens, and ones in vertical form.

1. $14 + 12$ **2.** $41 + 8$ **3.** $148 + 130$ **4.** $212 + 65$

Follow the steps.

5.

$$\begin{array}{r} 163 \\ +\ 214 \\ \hline \end{array}$$

Add ones.
Add tens.
Add hundreds.

6.

$$\begin{array}{r} 624 \\ +\ 45 \\ \hline \end{array}$$

Add ones.
Add tens.
Add hundreds.

Add.

7. $31 + 24$ **8.** $332 + 356$

9. $\begin{array}{r} 114 \\ +\ 74 \\ \hline \end{array}$ **10.** $\begin{array}{r} 304 \\ +\ 393 \\ \hline \end{array}$

Exercises

Show the numbers in vertical form and add.

1. $31 + 52$ **2.** $30 + 43$ **3.** $16 + 50$ **4.** $54 + 2$
5. $239 + 30$ **6.** $417 + 242$ **7.** $821 + 148$ **8.** $453 + 6$

Add.

9. $\begin{array}{r} 24 \\ +\ 45 \\ \hline \end{array}$ **10.** $\begin{array}{r} 36 \\ +\ 12 \\ \hline \end{array}$ **11.** $\begin{array}{r} 52 \\ +\ 43 \\ \hline \end{array}$ **12.** $\begin{array}{r} 85 \\ +\ 4 \\ \hline \end{array}$ **13.** $\begin{array}{r} 80 \\ +\ 17 \\ \hline \end{array}$

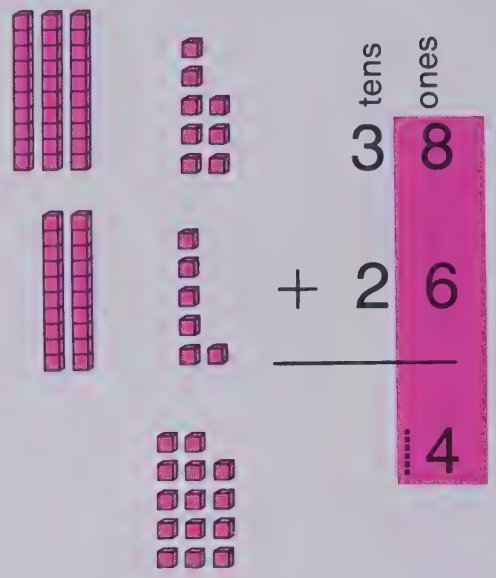
14. $\begin{array}{r} 44 \\ +\ 44 \\ \hline \end{array}$ **15.** $\begin{array}{r} 270 \\ +\ 318 \\ \hline \end{array}$ **16.** $\begin{array}{r} 166 \\ +\ 21 \\ \hline \end{array}$ **17.** $\begin{array}{r} 322 \\ +\ 167 \\ \hline \end{array}$ **18.** $\begin{array}{r} 157 \\ +\ 330 \\ \hline \end{array}$

19. $\begin{array}{r} 16 \\ +\ 232 \\ \hline \end{array}$ **20.** $\begin{array}{r} 452 \\ +\ 5 \\ \hline \end{array}$ **21.** $\begin{array}{r} 6 \\ +\ 92 \\ \hline \end{array}$ **22.** $\begin{array}{r} 50 \\ +\ 40 \\ \hline \end{array}$ **23.** $\begin{array}{r} 500 \\ +\ 200 \\ \hline \end{array}$

24. $\begin{array}{r} 715 \\ +\ 73 \\ \hline \end{array}$ **25.** $\begin{array}{r} 53 \\ +\ 26 \\ \hline \end{array}$ **26.** $\begin{array}{r} 102 \\ +\ 541 \\ \hline \end{array}$ **27.** $\begin{array}{r} 225 \\ +\ 271 \\ \hline \end{array}$ **28.** $\begin{array}{r} 340 \\ +\ 16 \\ \hline \end{array}$

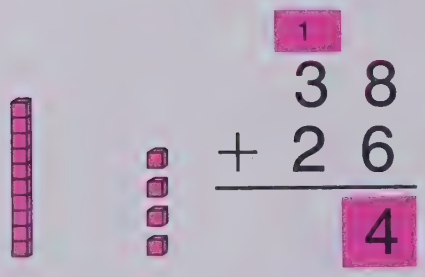
Addition, Regrouping Ones to Tens

Find the sum of 38 and 26.

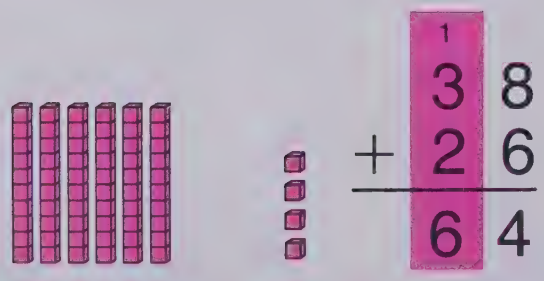


Show 38 + 26 in vertical form.

Add the ones.



Regroup 14 ones as 1 ten and 4 ones. Show the 1 ten lined up with the other tens.



Add the tens.

The sum of 38 and 26 is 64.

Working Together

Regroup the 14 ones as 1 ten and 4 ones and complete the addition.

	tens	ones
1.	4	7
	+ 1	7
		14

	tens	ones
2.	3	5
	+ 5	9
		14

Regroup the ones as 1 ten and some ones and complete the addition.

	tens	ones
3.	2	9
	+ 4	6
		15

Add.

4. 57 + 19

5. 36 + 47

6. 255 + 25

7. 118 + 173

Exercises

Add.

1. 27 + 58

2. 75 + 17

3. 336 + 36

4. 43 + 8

5. 49 + 24

6. 461 + 25

7. 159 + 317

8. 54 + 37

9. 26 + 68

10. 49 + 35

11. 717 + 24

12. 18 + 15

13. 135 + 426

14. 669 + 19

15. 236 + 359

16. 122 + 19

17. 27 + 35

18. 535 + 62

19. 348 + 347

20. 16 + 65

21. 31 + 19

22. 355 + 38

23. 228 + 724

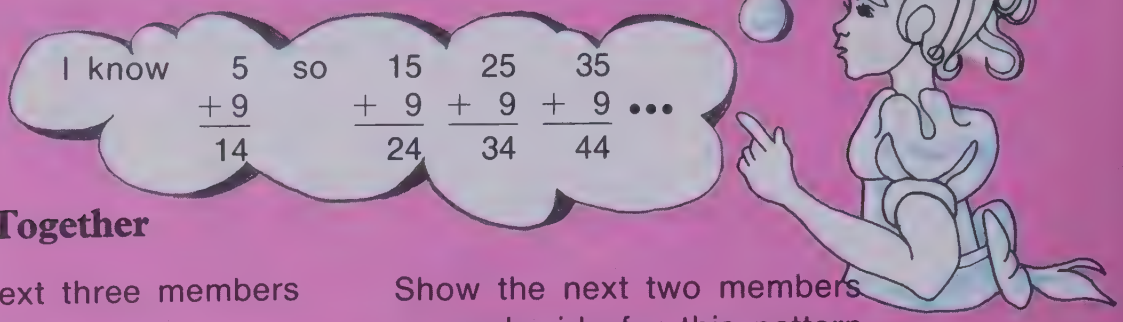
Solve.

***24.** 59¢ for 36 sheets of paper.
38¢ for 44 sheets of paper.
How many sheets of paper in all?

***25.** 59¢ for 36 sheets of paper.
38¢ for 44 sheets of paper.
How much in all for the paper?

Addition Patterns

Patterns can help you add numbers in your head.



Working Together

Show the next three members for this pattern.

1. 7 17 27
+4 + 4 + 4 •••
11 21 31

Show the next two members on each side for this pattern.

2. 24 34 44
••• + 6 + 6 + 6 •••
30 40 50

Show the next three members of the patterns that begin with these basic facts.

3. 5
+3
8

4. 9
+7
16

Add.

5. 23
+ 4

6. 12
+ 8

7. 47
+ 5

Exercises

Show the next two members on each side for these patterns.

1. 23 33
••• + 3 + 3 •••
26 36

2. 53 63
••• + 7 + 7 •••
60 70

3. 38 48
••• + 6 + 6 •••
44 54

Add.

4. 16 + 8	**5.** 53 + 9	**6.** 29 + 6	**7.** 18 + 8	**8.** 76 + 4	**9.** 22 + 6
10. 18 + 7	**11.** 65 + 6	**12.** 29 + 1	**13.** 16 + 7	**14.** 35 + 2	**15.** 17 + 6
16. 95 + 8	**17.** 26 + 6	**18.** 18 + 3	**19.** 27 + 8	**20.** 15 + 5	**21.** 29 + 4

Adding Three Numbers

In the Canada Fitness Tests, the children were awarded 8 bronze, 8 silver, and 9 gold badges. How many badges were they awarded in all?

Add $8 + 8 + 9$.

Think

$8 + 8 = 16$

$16 + 9 = 25$

Write

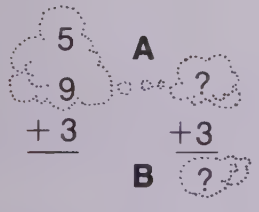
$$\begin{array}{r} 8 \\ 8 \\ +\,9 \\ \hline 25 \end{array}$$

The children were awarded 25 badges.

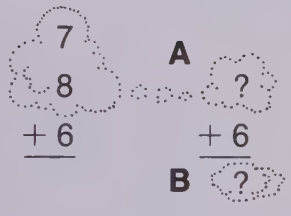
Working Together

What numbers do you think of for A and B?

1.



2.



Add.

3. $\begin{array}{r} 8 \\ 2 \\ +\,9 \\ \hline \end{array}$

4. $\begin{array}{r} 9 \\ 7 \\ +\,8 \\ \hline \end{array}$

Exercises

Add.

1. $6 + 9 + 3$

2. $5 + 8 + 4$

3. $7 + 9 + 5$

4. $8 + 8 + 8$

5. $3 + 9 + 9$

6. $4 + 7 + 8$

7. $9 + 5 + 8$

8. $3 + 7 + 5$

9. $\begin{array}{r} 6 \\ 5 \\ +\,6 \\ \hline \end{array}$

10. $\begin{array}{r} 9 \\ 5 \\ +\,7 \\ \hline \end{array}$

11. $\begin{array}{r} 8 \\ 6 \\ +\,9 \\ \hline \end{array}$

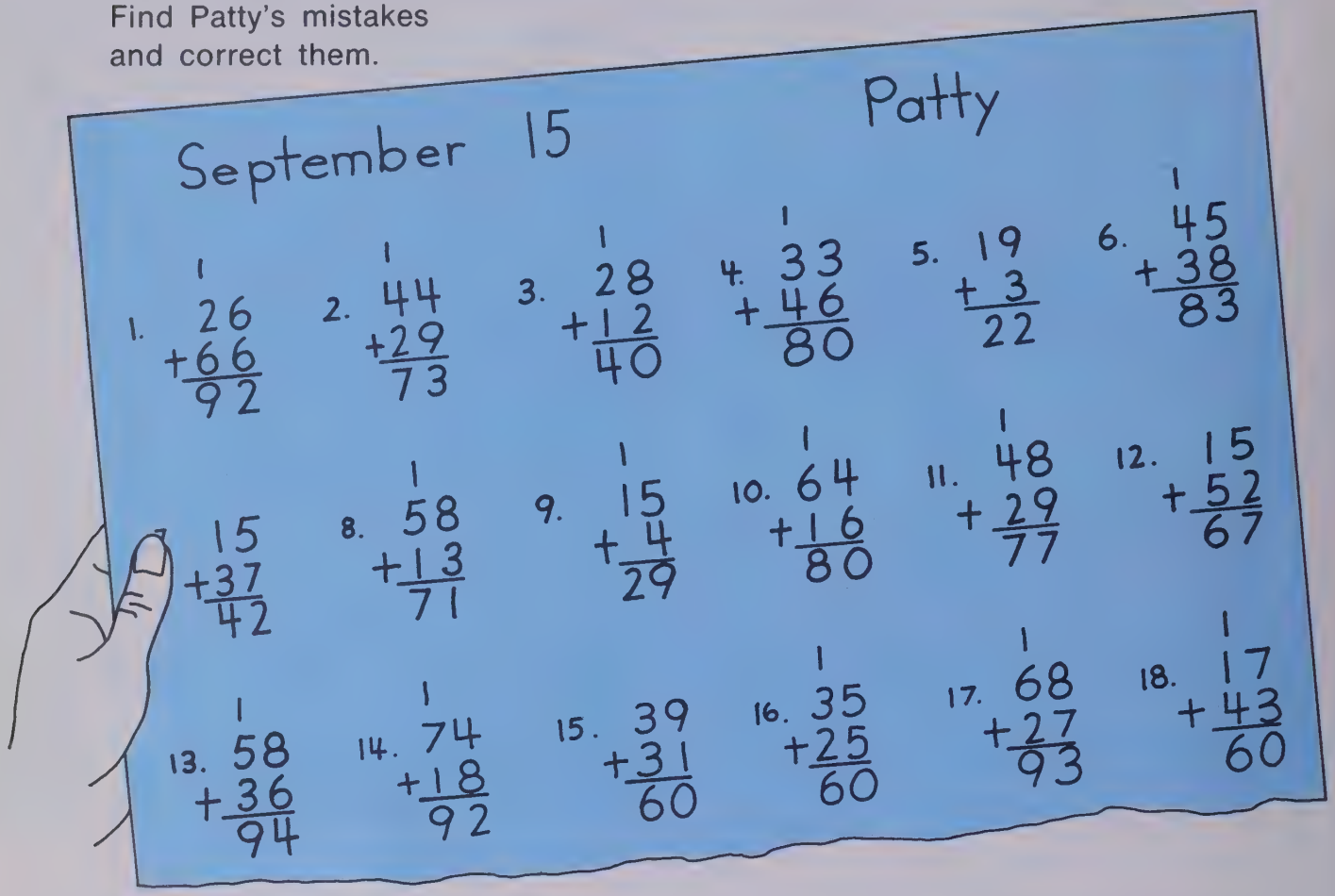
12. $\begin{array}{r} 2 \\ 8 \\ +\,3 \\ \hline \end{array}$

13. $\begin{array}{r} 7 \\ 9 \\ +\,6 \\ \hline \end{array}$

14. $\begin{array}{r} 5 \\ 8 \\ +\,9 \\ \hline \end{array}$

Practice

Patty made 5 mistakes.
Find Patty's mistakes
and correct them.



Complete each addition chain.

19. 8 → +7 → +8 → +9 → +10 → 42

20. 14 → +15 → +16 → +17 → +18 → 80

Show as many additions as you can using three numbers in a row.

1.

48	18	30
42	60	18
90	78	12

30 + 60 = 90

2.

12	35	23
35	24	59
47	11	36

3.

36	75	39
27	24	51
63	51	12

try this

There are 8 additions possible for each square.

Answer these questions.

21. 17 yellow pipe cleaners.
14 blue pipe cleaners.
How many pipe cleaners in all?

22. 143 big paper clips.
245 little paper clips.
How many paper clips in all?

23. 28 fat rubber bands.
34 thin rubber bands.
How many rubber bands in all?

24. 37 long sticks.
57 short sticks.
How many sticks in all?

25. 22 large clamps.
18 small clamps.
How many clamps in all?

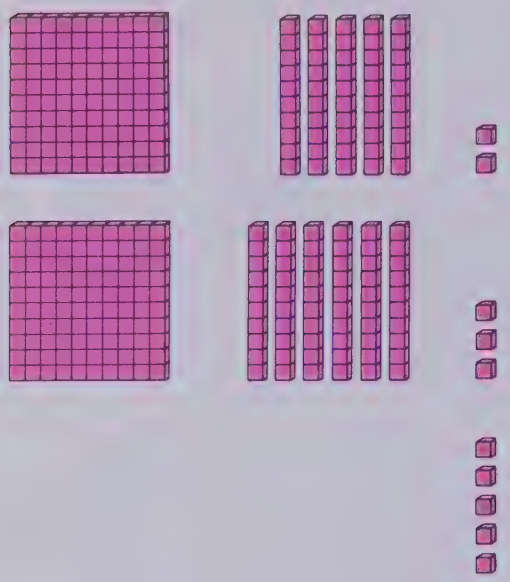
26. 17 gummed squares.
7 gummed circles.
How many gummed shapes in all?

27. 8 red, 5 blue, 7 green push pins. How many push pins in all?

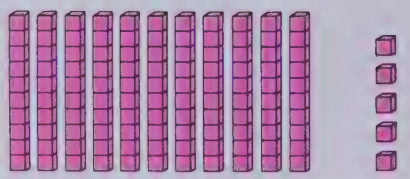
***28.** 16 used crayons.
Three boxes of new crayons.
How many crayons in all?

Addition, Regrouping Tens to Hundreds

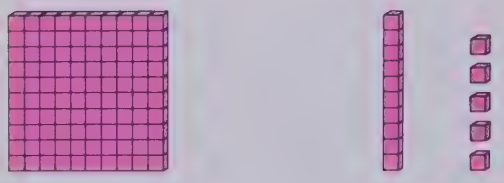
Add 152 and 163.



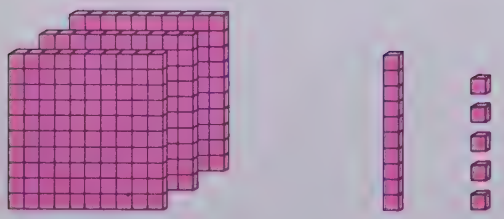
hundreds	tens	ones	
1	5	2	
+ 1	6	3	
		5	Add the ones.



	1	5	2
+ 1	6	3	Add the tens.
	1	5	



	1		
	1	5	2
+ 1	6	3	Regroup 11 tens as 1 hundred and 1 ten. Show the 1 hundred lined up with the other hundreds.
	1	5	



	1		
	1	5	2
+	1	6	3
	3	1	5

Add the hundreds.

152 + 163 = 315

Working Together

Regroup the 12 tens as 1 hundred and 2 tens and complete the addition.

1.

	hundreds	tens	ones
	2	5	4
+	1	7	2
		12	6

2.

	hundreds	tens	ones
	3	9	1
+	2	3	4
		12	5

Add.

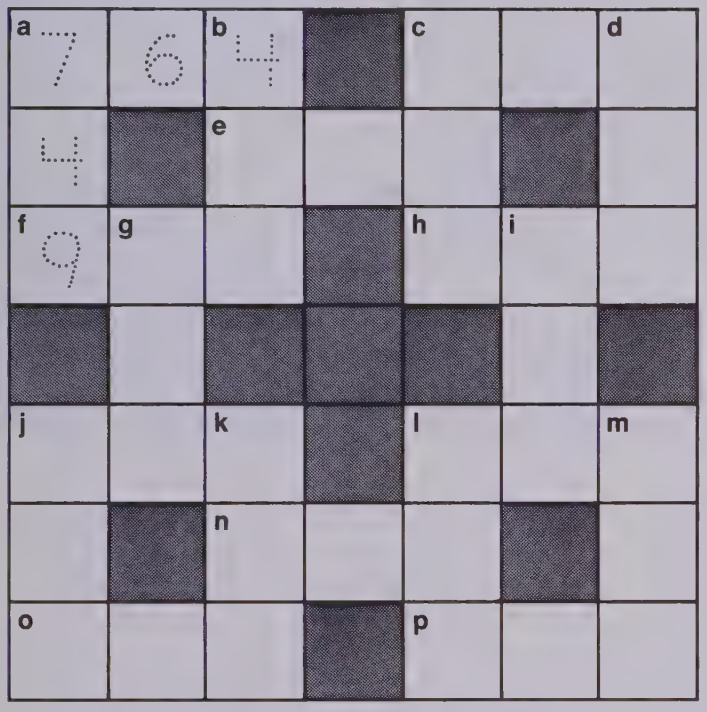
3. 294 + 153

4. 132 + 85

5. 351 + 154

Exercises

Copy this puzzle on paper and complete.



Across

a. 481 + 283
c. 271 + 261
e. 681 + 181
f. 594 + 365
h. 199 + 80
j. 391 + 61
l. 161 + 282
n. 260 + 272
o. 730 + 80
p. 463 + 363

Down

a. 572 + 177
b. 298 + 191
c. 271 + 251
d. 178 + 71
g. 191 + 384
i. 472 + 272
j. 254 + 184
k. 170 + 80
l. 282 + 146
m. 153 + 153

Practice

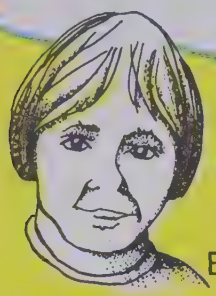
634 437 562 473 508 352 526

437 352 473 437 352 526 634 325 352 526 526

805 325 364 526 352 526 437 137 473 929 352 526

437 562 473 227 352 526 562 473 173 352 526

437 325 715 473 352 526 235



Brad tells a sad story.

1. Copy Brad's coded story. To decode it, first add to match each letter with a number.

A 314 + 38	**B** 83 + 90	**D** 352 + 174	**E** 109 + 28
F 555 + 250	**H** 261 + 176	**I** 224 + 338	**L** 270 + 238
M 415 + 514	**O** 108 + 217	**P** 182 + 45	**R** 129 + 235
S 236 + 237	**T** 317 + 317	**W** 463 + 252	**!** 216 + 19

2. Then put the letters in place of their matching numbers in the story.

The children are practicing addition and subtraction.

3. 128 addition exercises.
134 subtraction exercises.
How many exercises in all?

4. 191 exercises one week.
71 exercises the next week.
How many exercises in all?

5. Paul did 97 addition exercises and 122 subtraction exercises.
How many did Paul do in all?

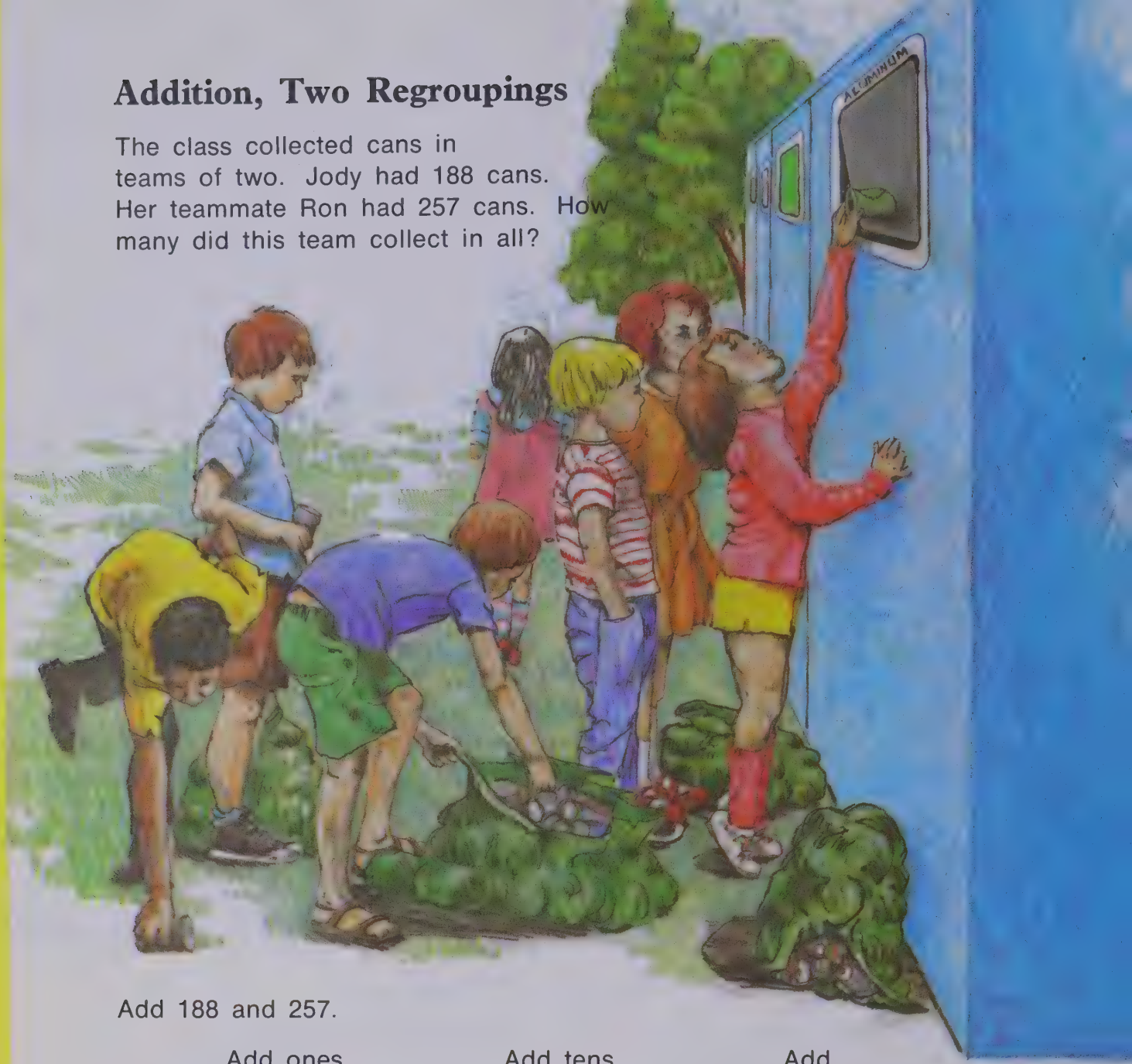
6. Paul did 86 addition and 109 subtraction exercises correctly. How many did Paul do correctly in all?

7. Gail did 183 exercises one week and 64 the next week.
How many did she do in all?

***8.** On a speed drill, Jo did 68 exercises in 17 minutes and 37 harder ones in 37 minutes.
How long did Jo take in all?

Addition, Two Regroupings

The class collected cans in teams of two. Jody had 188 cans. Her teammate Ron had 257 cans. How many did this team collect in all?



Add 188 and 257.

Add ones and regroup.

$$\begin{array}{r} {\scriptstyle 1} \\ 188 \\ +\,257 \\ \hline 5 \end{array}$$

Add tens and regroup.

$$\begin{array}{r} {\scriptstyle 1\,1} \\ 188 \\ +\,257 \\ \hline 45 \end{array}$$

Add hundreds.

$$\begin{array}{r} {\scriptstyle 1\,1} \\ 188 \\ +\,257 \\ \hline 445 \end{array}$$

This team collected 445 cans.

Working Together

Follow the steps.

1.

$$\begin{array}{r} 285 \\ +\ 167 \\ \hline \end{array}$$

Add ones and regroup.
Add tens and regroup.
Add hundreds.

2.

$$\begin{array}{r} 336 \\ +\ 284 \\ \hline \end{array}$$

Add ones and regroup.
Add tens and regroup.
Add hundreds.

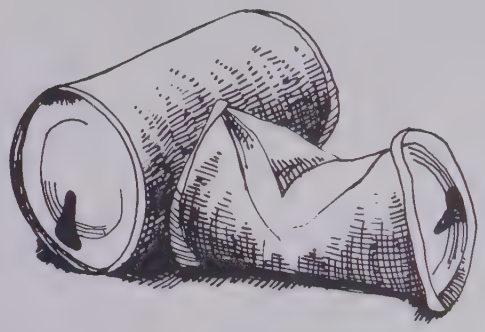
Exercises

How many did each of these other teams collect?

1. Jim 289, Sheila 356
2. Wanda 167, Ian 193
3. Kristin 335, Effie 426
4. Andras 192, Julie 178
5. Lyman 245, Oliver 355

Add.

6. $\begin{array}{r} 435 \\ +\ 176 \\ \hline \end{array}$	**7.** $\begin{array}{r} 87 \\ +\ 281 \\ \hline \end{array}$	**8.** $\begin{array}{r} 644 \\ +\ 187 \\ \hline \end{array}$
9. $\begin{array}{r} 559 \\ +\ 74 \\ \hline \end{array}$	**10.** $\begin{array}{r} 394 \\ +\ 186 \\ \hline \end{array}$	**11.** $\begin{array}{r} 277 \\ +\ 75 \\ \hline \end{array}$
12. $\begin{array}{r} 439 \\ +\ 261 \\ \hline \end{array}$	**13.** $\begin{array}{r} 783 \\ +\ 139 \\ \hline \end{array}$	**14.** $\begin{array}{r} 146 \\ +\ 154 \\ \hline \end{array}$
15. $\begin{array}{r} 897 \\ +\ 58 \\ \hline \end{array}$	**16.** $\begin{array}{r} 666 \\ +\ 234 \\ \hline \end{array}$	**17.** $\begin{array}{r} 509 \\ +\ 382 \\ \hline \end{array}$



Using the metal in cans more than one time is a good idea. It saves energy and helps keep Canada clean.

The children made a chart. It shows about how much they can earn for the cans they collect.

Number of cans	Worth about
100	$0.30
200	$0.60
300	$0.90
400	$1.20
500	$1.50
600	$1.80
700	$2.10
800	$2.40
900	$2.70

Derek found 387 cans.
Todd found 215 cans.
About how much did Derek and Todd earn for the class?

PROBLEM SOLVING

Practice

Add.

1. 21 + 33	**2.** 35 + 42	**3.** 257 + 31	**4.** 352 + 247	**5.** 406 + 273
6. 63 + 5	**7.** 74 + 9	**8.** 49 + 7	**9.** 56 + 8	**10.** 96 + 4
11. 28 + 47	**12.** 35 + 56	**13.** 328 + 35	**14.** 257 + 219	**15.** 135 + 125
16. 231 + 97	**17.** 726 + 192	**18.** 173 + 66	**19.** 463 + 371	**20.** 193 + 486
21. 86 + 45	**22.** 28 + 83	**23.** 876 + 26	**24.** 479 + 352	**25.** 254 + 577
26. 286 + 129	**27.** 79 + 39	**28.** 314 + 386	**29.** 604 + 98	**30.** 180 + 286
31. 247 + 658	**32.** 475 + 479	**33.** 89 + 16	**34.** 607 + 154	**35.** 135 + 688

The class took a trip to the fire station.
Here are some things the children learned.

36. 366 m (metres) of large hose and 155 m of small hose are on a pumper truck. How many metres of hose are on the pumper truck in all?

37. The station had 385 calls in the first two weeks of the month. It had 479 calls in the last two weeks. How many calls were there in all?

38. Two trucks answer a call. They take 5 minutes to reach a false alarm. They take 17 more minutes to return. How long were they gone from the station?

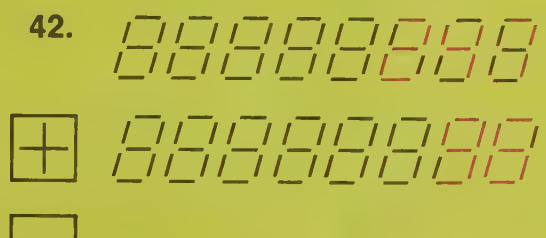
39. Last year the station put out 214 building and car fires. It also put out 67 trash and grass fires. How many fires did it put out in all?

40. Once there were two big fires on the same night. 85 fire fighters were at one. 67 were at the other. How many fought the fires?

***41.** In a school fire drill, 112 children left by the front door. 58 left by one back door and 65 left by the other back door. Did more leave by the front or back?

What would the calculator show for the sum?

42.



43.

Adding Amounts of Money

Bicycle Inspection Day is next Monday at school. To get ready, Barbara spent $2.58 for a light and $1.69 for a horn. How much did she spend in all?

Add $2.58 and $1.69.

$$\begin{array}{r} {\scriptstyle 1\quad 1} \\ \$2.58 \\ +\ 1.69 \\ \hline \$4.27 \end{array}$$

Barbara spent $4.27 in all.

Working Together

Line up the dollars and cents in vertical form.

1. $4.98 + $3.26

2. $2.25 + $0.39

Add.

3. $1.75 + 0.57

4. $5.84 + 1.88

Exercises

Add.

1. $1.98 + $3.76

2. $2.05 + $0.87

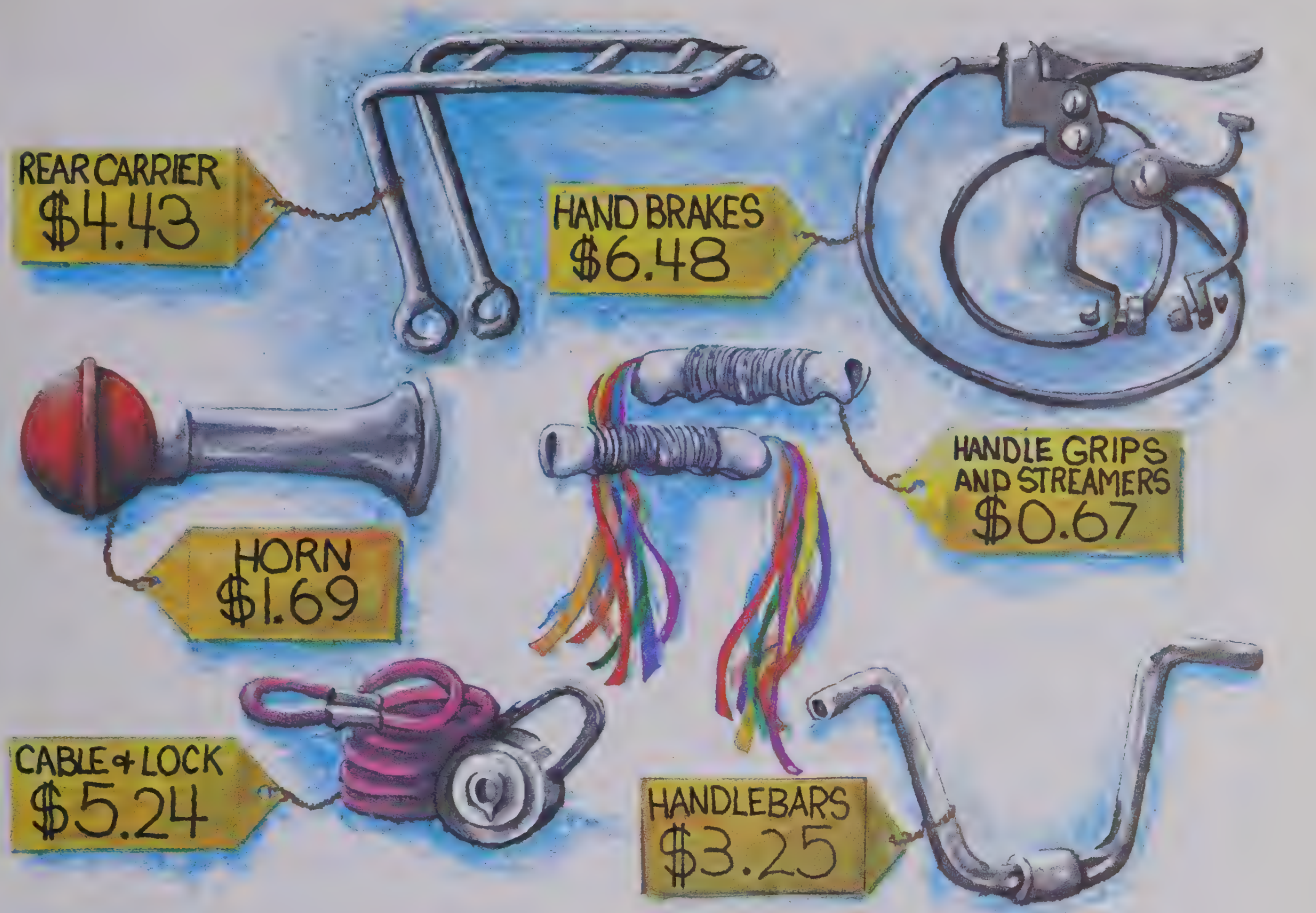
3. $4.99 + $4.89

4. $2.35 + 1.79

5. $4.28 + 3.57

6. $5.29 + 0.83

7. $4.75 + 2.68



How much do these cost in all?

8. Banana seat and horn

9. Cable lock and rear carrier

10. Speedometer and handle grips

11. Brakes and light

Solve.

12. Tommy wants the banana seat and the handle grips. How much money does he need?

13. Sara earned $3.75 for her bike equipment. Her mother gave her $2.75 more. How much did she have in all?

*__14.__ Which cost more, the brakes and handlebars or the banana seat and light?

*__15.__ The speedometer and horn come in a package for $9. Do they cost less in a package or not in a package?

*__16.__ Ginny needs a cable lock and a horn. She has $7.00. Is that enough?

*__17.__ Nadia has $5.00. She bought two items. What two items could they be?

Too Much Information

Sometimes there is more information than needed for solving a problem.

Example: Jeff had 7 pencils.
He bought 8 more.
He paid 75¢.
How many pencils does he have in all?

This is not needed for solving the problem.

What information is not needed for solving each problem?

1. Marc's class has 11 girls.
5 girls have brown hair.
Marc's class has 9 boys.
How many are in Marc's class?

2. 7 crayons are new.
5 crayons are used.
3 of them are blue.
How many crayons are there?

3. 6 paper clips are large.
9 paper clips are small.
Jeri takes 3 small clips.
How many small clips are left?

4. There are 2 pencil sharpeners.
5 pencils need sharpening.
7 pencils are sharp.
How many pencils are there?

5. I had 17 pens.
8 pens were worn out.
I threw away 8 pens.
How many pens do I have left?

6. 7 girls and 5 boys used paste. 8 children used glue. How many children used paste?

7. 8 socks are brown. 6 socks are blue. 2 socks have holes. How many more brown socks than blue socks are there?

8. There are 7 thick books, 3 thin books, 10 library cards, and 2 pens. How many books are there in all?

9. On Wednesday, 6 books were taken from the library.
9 were taken on Thursday.
15 were taken on Friday.
How many fewer were taken on Thursday than on Friday?

10. Lee made 7 peanut butter sandwiches, 5 jelly sandwiches, and 6 sandwiches with peanut butter and jelly. On how many sandwiches did Lee use jelly?

PROBLEM SOLVING

Checking Up

Add.

1. $\begin{array}{r} 43 \\ +\ 24 \\ \hline \end{array}$

2. $467 + 21$

3. $\begin{array}{r} 341 \\ +\ 236 \\ \hline \end{array}$

4. $291 + 104$

5. $54 + 27$

6. $\begin{array}{r} 46 \\ +\ 8 \\ \hline \end{array}$

7. $373 + 19$

8. $\begin{array}{r} 259 \\ +\ 123 \\ \hline \end{array}$

9. $\begin{array}{r} 80 \\ +\ 49 \\ \hline \end{array}$

10. $\begin{array}{r} 892 \\ +\ 76 \\ \hline \end{array}$

11. $\begin{array}{r} 173 \\ +\ 294 \\ \hline \end{array}$

12. $\begin{array}{r} 541 \\ +\ 393 \\ \hline \end{array}$

13. $\begin{array}{r} 275 \\ +\ 469 \\ \hline \end{array}$

14. $\begin{array}{r} 458 \\ +\ 77 \\ \hline \end{array}$

15. $\begin{array}{r} 746 \\ +\ 157 \\ \hline \end{array}$

16. $\begin{array}{r} 894 \\ +\ 96 \\ \hline \end{array}$

17. $\begin{array}{r} \$4.25 \\ +\ 4.60 \\ \hline \end{array}$

18. $\begin{array}{r} \$6.73 \\ +\ 2.71 \\ \hline \end{array}$

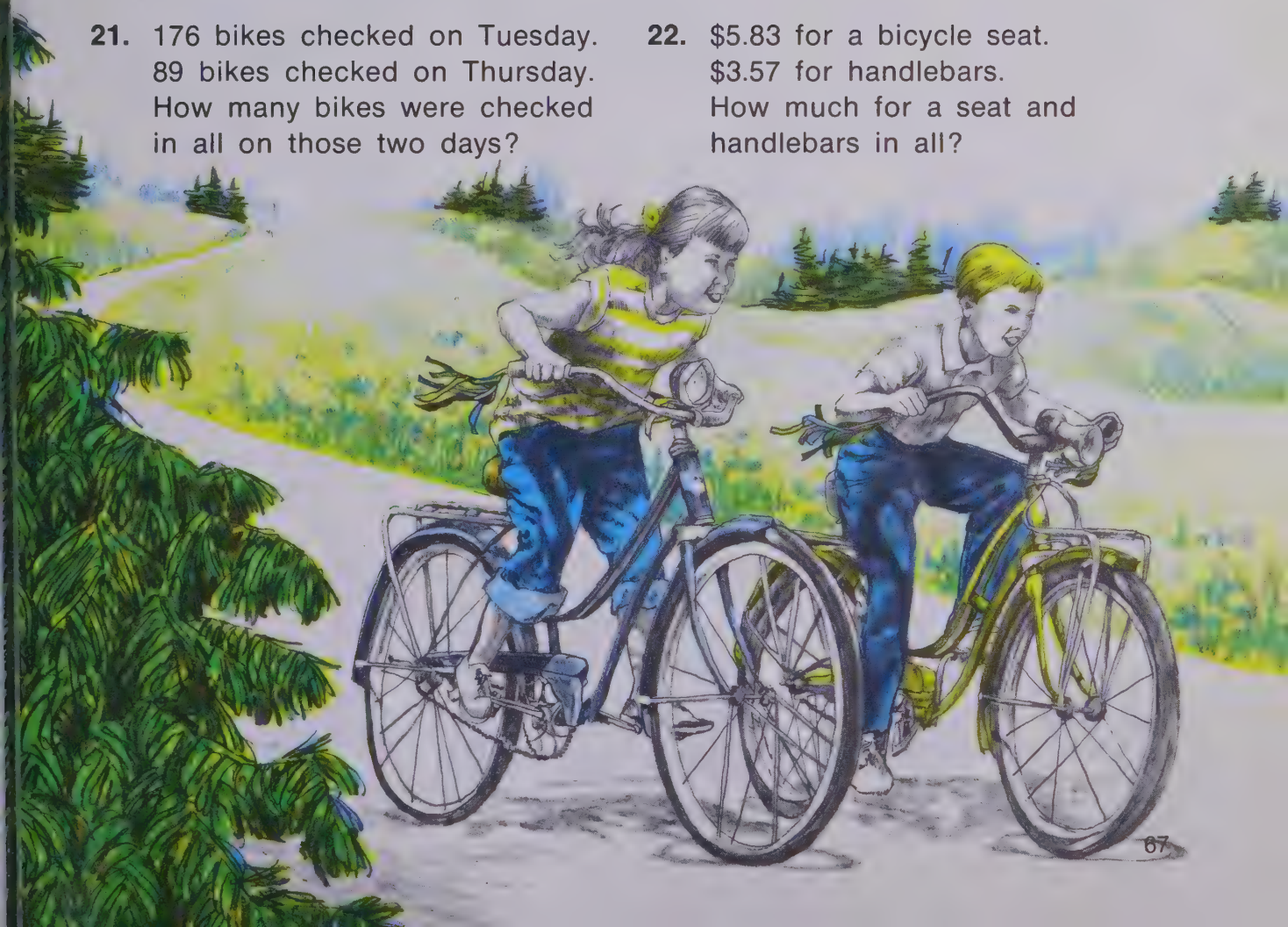
19. $\begin{array}{r} \$3.85 \\ +\ 1.08 \\ \hline \end{array}$

20. $\begin{array}{r} \$5.46 \\ +\ 0.85 \\ \hline \end{array}$

Solve.

21. 176 bikes checked on Tuesday. 89 bikes checked on Thursday. How many bikes were checked in all on those two days?

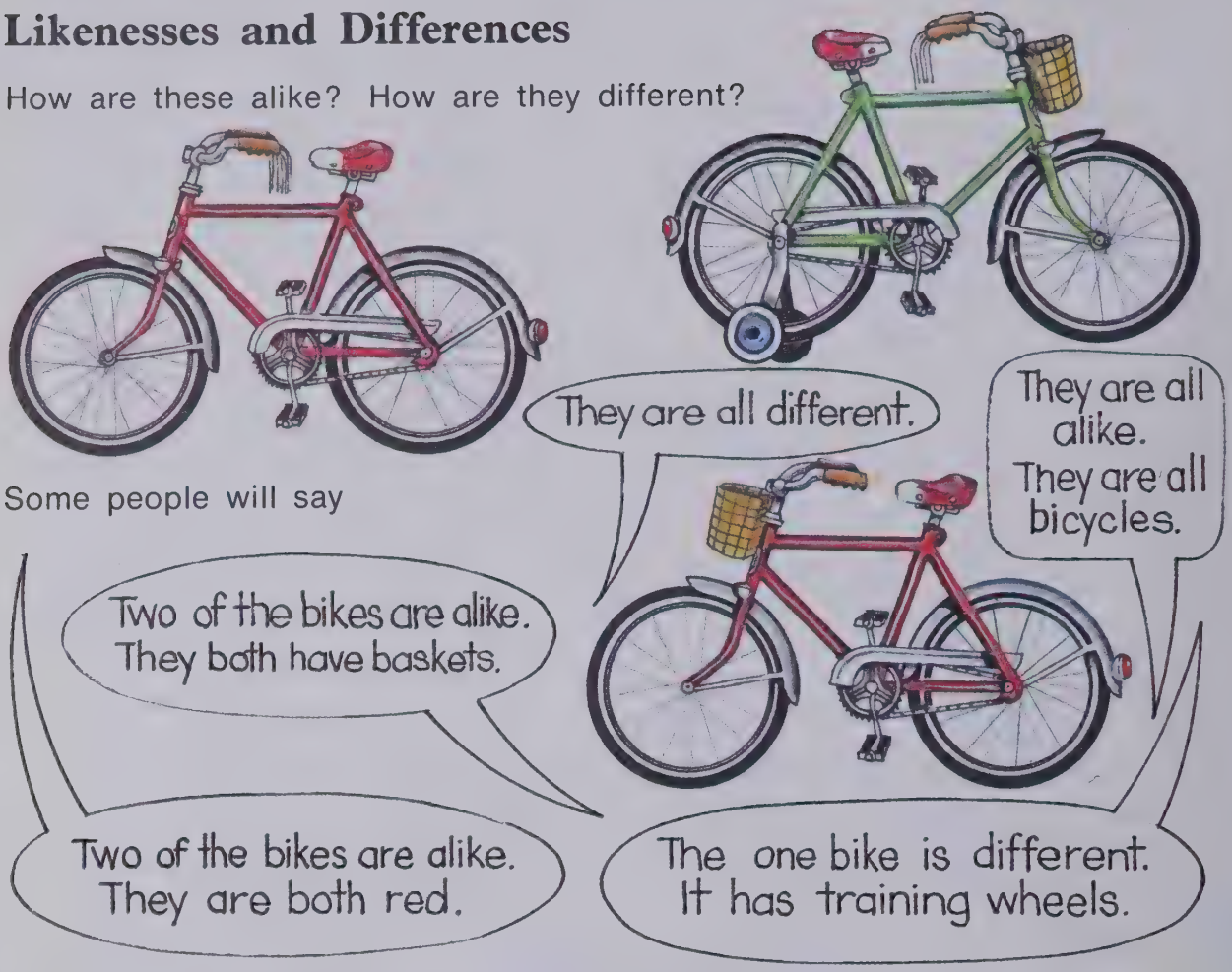
22. \$5.83 for a bicycle seat. \$3.57 for handlebars. How much for a seat and handlebars in all?



4 GEOMETRY

Likenesses and Differences

How are these alike? How are they different?


They are all different.
They are all alike. They are all bicycles.
Two of the bikes are alike. They both have baskets.
Two of the bikes are alike. They are both red.
The one bike is different. It has training wheels.

Some people will say

Exercises

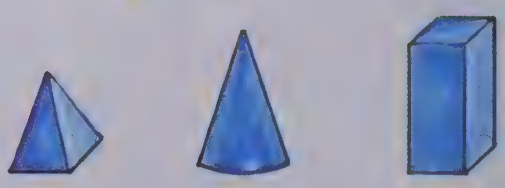
How are all three in each group alike?
How are two alike and the other different?

1.

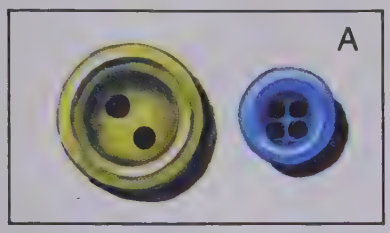
2.

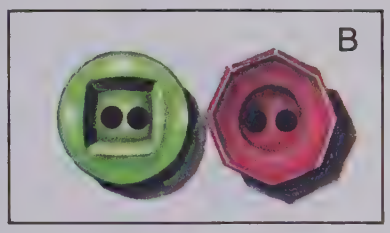
3.

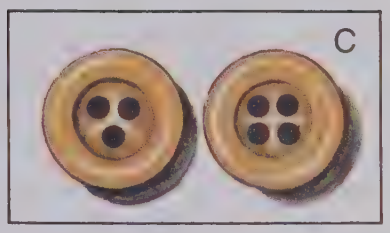
4.



Copy the chart. Write "same" or "different" in each box.







5.

	Buttons A	Buttons B	Buttons C
Shape	?	?	?
Color	?	?	?
Size	?	?	?
Number of holes	?	?	?

Do each of these.

6. Tell one way in which these are alike.

7. Tell two ways in which these are alike.

8. Tell three ways in which these are alike.

9. Tell three ways in which these are different.

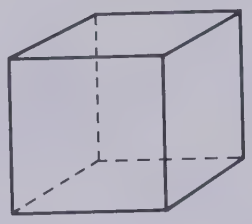
10. Tell two ways in which these are different.

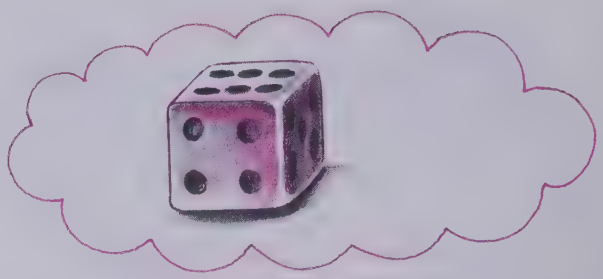
11. Tell one way in which these are different.

Solids

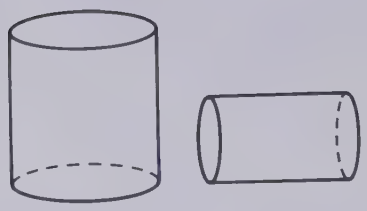
What objects do these shapes suggest?

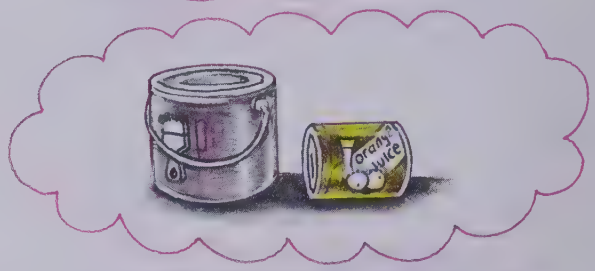
Cube



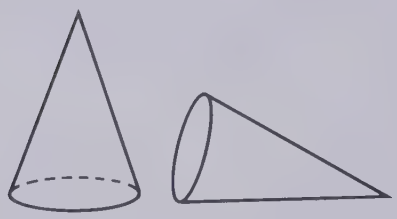


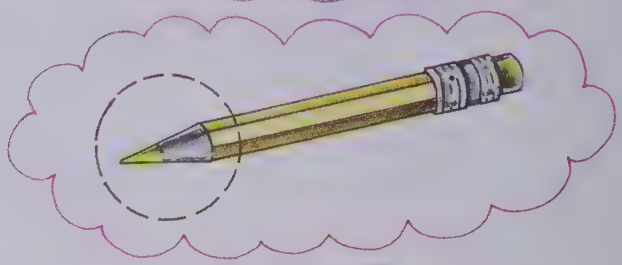
Cylinders



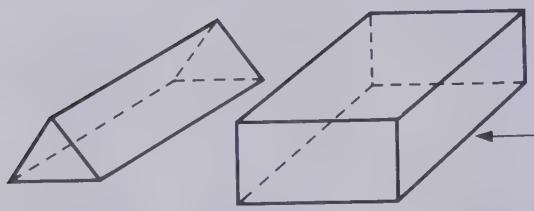


Cones

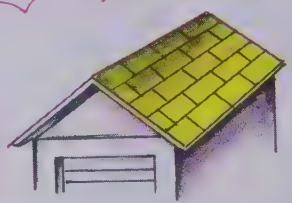




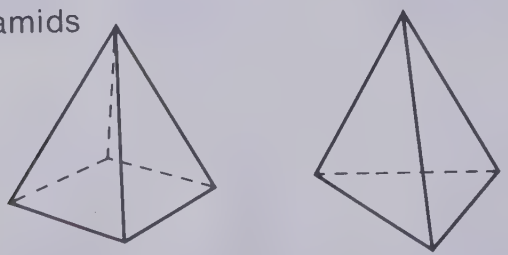
Prisms



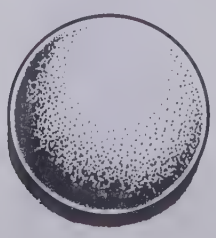
This prism is also called a **cuboid.**

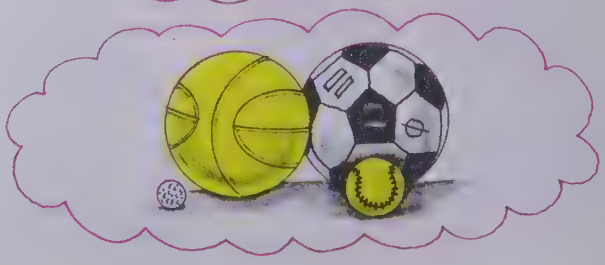


Pyramids



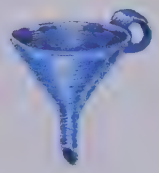
Sphere

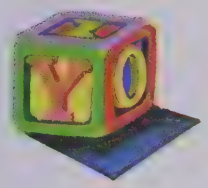


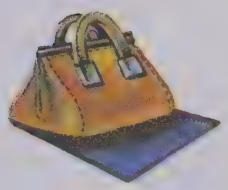


Working Together

What shapes do these objects suggest?

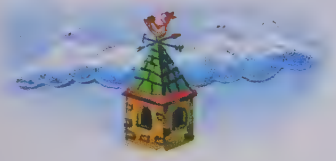
1. 

2. 

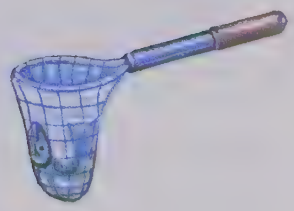
3. 

Exercises

What shapes do these objects suggest?

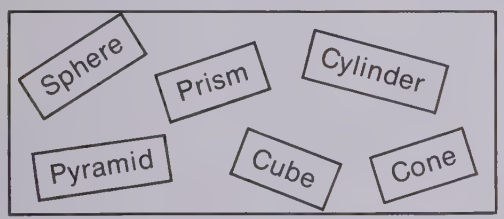
1. 

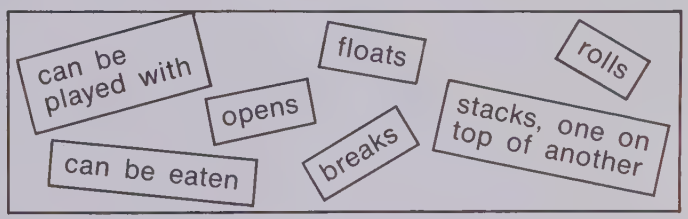
2.

3. 

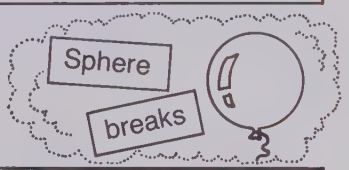
4. a hockey puck
5. a balloon
6. a carrot
7. an orange
8. a drinking straw
9. a railroad boxcar

Choose one card from each group.

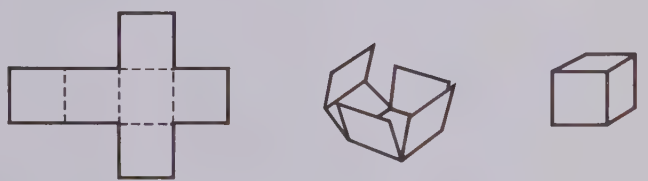




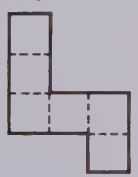
10. Try to name an object to match *both* cards. Choose cards until you have made seven matches.

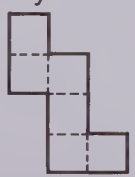


Cut out a pattern like this.
Fold along the dotted lines.
The result is a cube.



Which of these patterns could you fold into a cube?

1. 

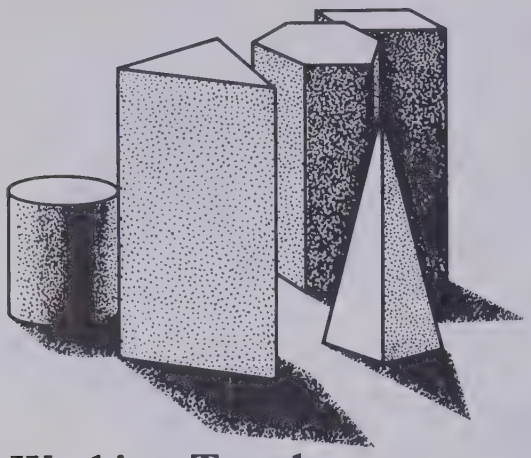
2. 

3.

4. Draw another pattern that could be folded into a cube.

try this

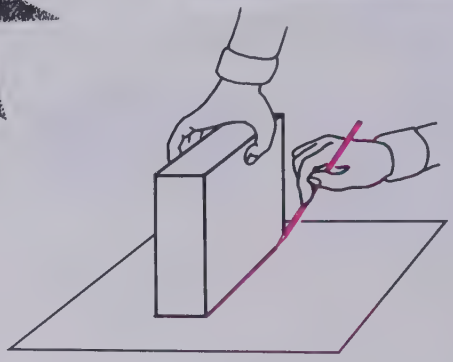
Faces and Their Shapes



This prism has 6 **faces.**

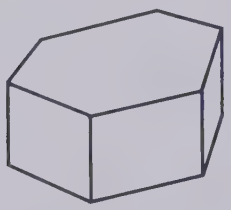
Working Together

Here is a way to show the shape of a face.

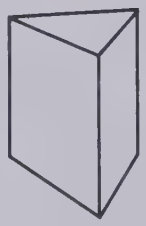


Which shapes would you get by drawing around each of these?

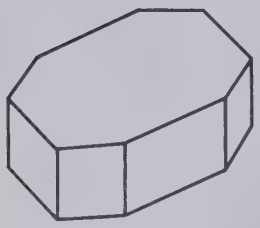
1.



2.



3.



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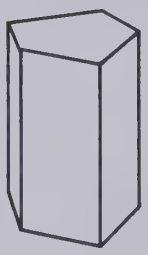
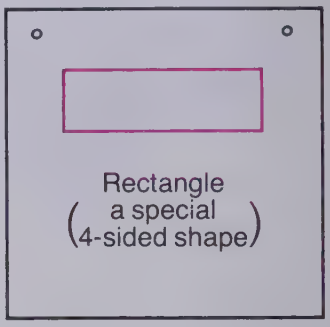


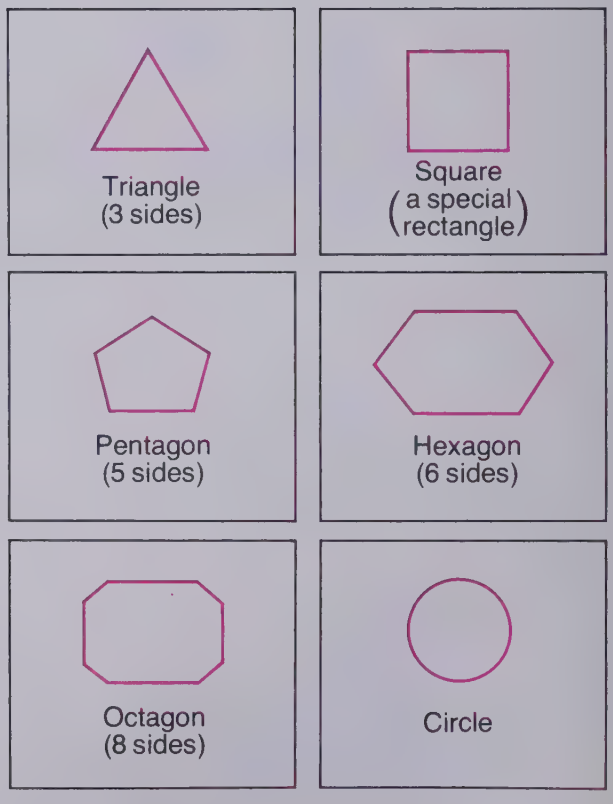
5. How are all triangles alike?

6. How are squares different from hexagons?

7. Show how two pentagons could be different.

8. Show a four-sided shape that is not a rectangle.





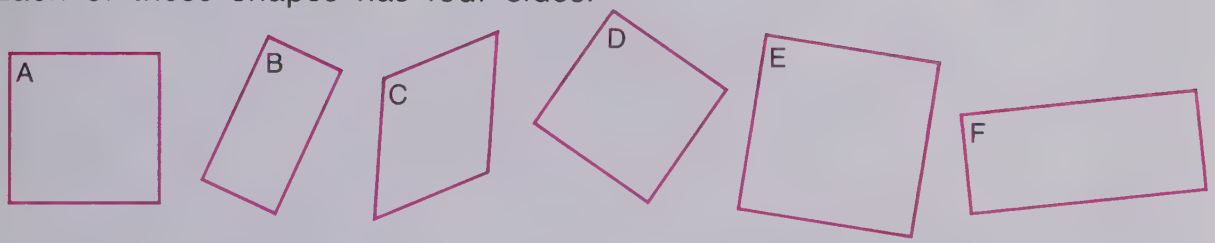
Each face has the shape of a **rectangle.** Two of the rectangles have four equal sides. They are **squares.**

A rectangle has two pairs of equal sides.

It has corners like ⌐, and not like ⌐ or ◺.

Exercises

Each of these shapes has four sides.



1. Which are rectangles?

2. Which are squares?

Draw pictures to show how

3. two triangles can be different.

4. two hexagons can be different.

Look around. Name two objects you see that show the shape of

5. a triangle.

6. a rectangle.

7. a square.

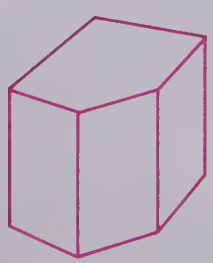
Draw a picture

8. of an animal. Use only triangles and rectangles.

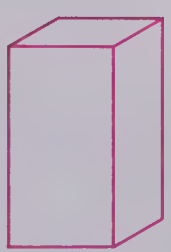
9. of a robot. Use each of the shapes at least once.

Name the shapes you see in the faces of each block.

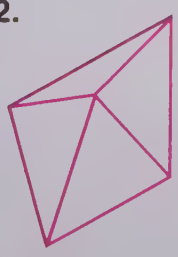
10.



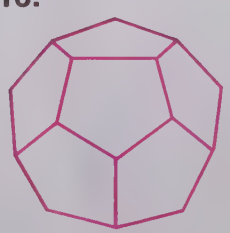
11.



12.



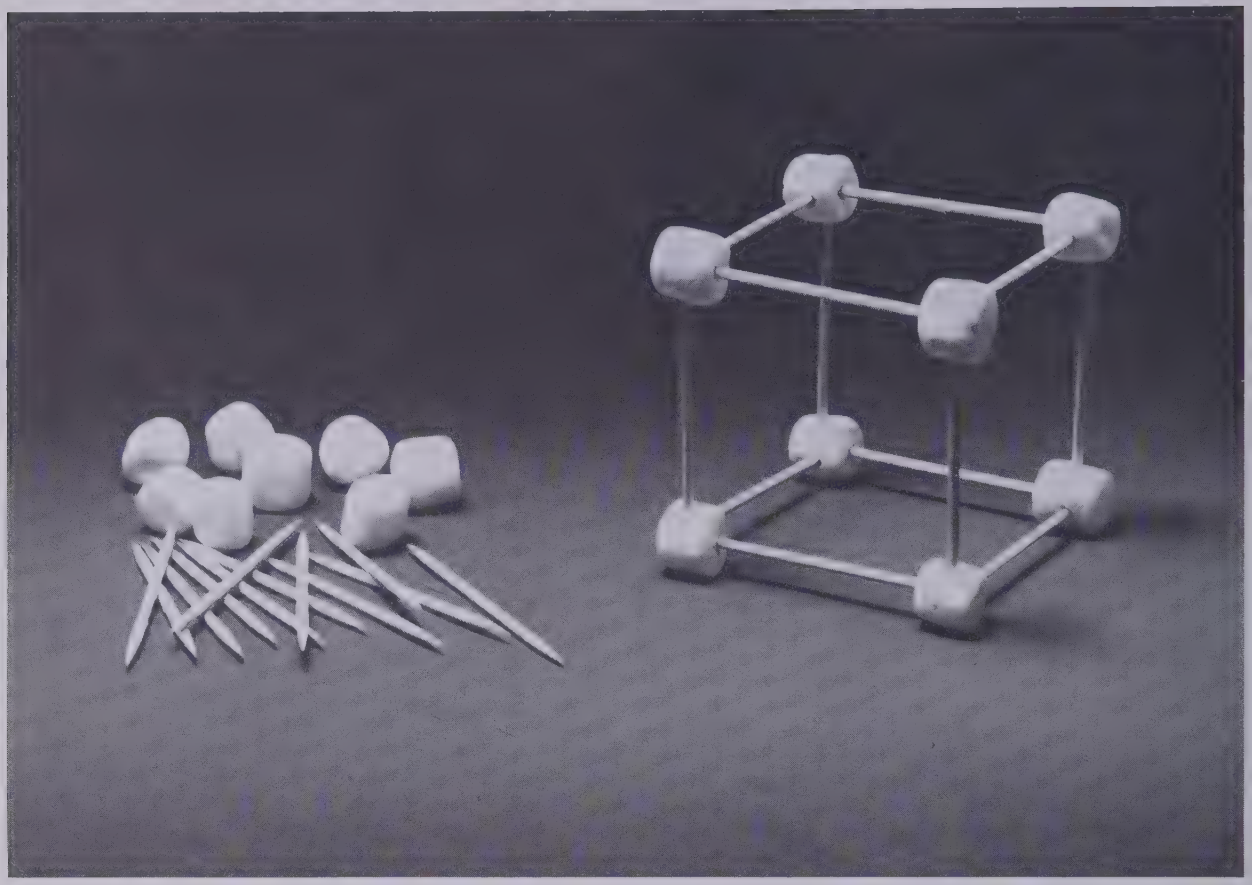
13.



Edges and Vertices

12 toothpicks and 8 marshmallows can be put together to show the shape of a cube.

A cube has
12 **edges** and 8 **vertices.**



Working Together

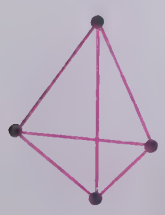
You can draw a **line segment** for an edge.
You can draw a **point** for a **vertex.**

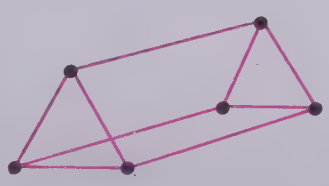
Example:

12 line segments show the edges of a cube.
8 points show the vertices of a cube.

How many points and how many line segments are in each shape?

How many vertices, edges, and faces are in each shape?

1. 

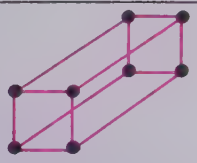
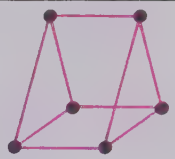
2. 

3.

4.

Exercises

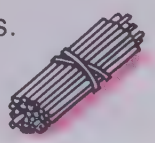
Copy and complete the table.

	1. 	2.	3. 
Number of vertices	?	?	?
Number of edges	?	?	?
Number of faces	?	?	?

Straws and clay balls can be used to make shapes.

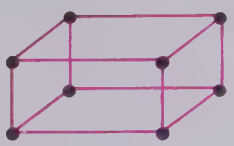
How many of each are needed to make these shapes?

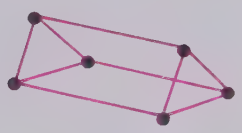
short drinking straws

long drinking straws 

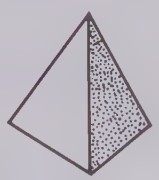
clay balls

4.

5. 

6. 

***7.** These two pyramids can be joined to make a new shape. How many faces, edges, and vertices would be in the new shape?

***8.** How many faces, how many edges, how many vertices in this pyramid? 

Add or subtract.

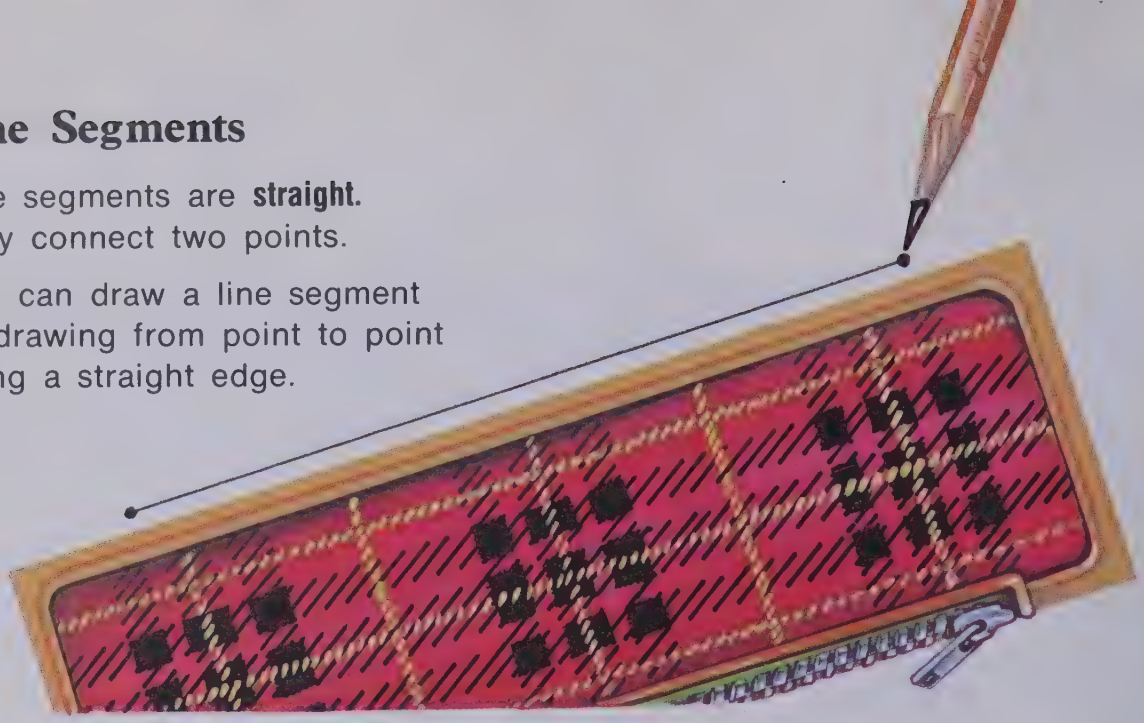
1. 6 + 6	**2.** 11 − 3	**3.** 9 + 2	**4.** 10 − 7	**5.** 8 + 6	**6.** 11 − 4
7. 2 + 8	**8.** 15 − 9	**9.** 5 + 7	**10.** 14 − 5	**11.** 7 + 8	**12.** 14 − 6
13. 8 + 4	**14.** 13 − 8	**15.** 8 + 8	**16.** 13 − 7	**17.** 9 + 4	
18. 9 + 7	**19.** 11 − 5	**20.** 6 + 4	**21.** 18 − 9		

KEEPING SHARP

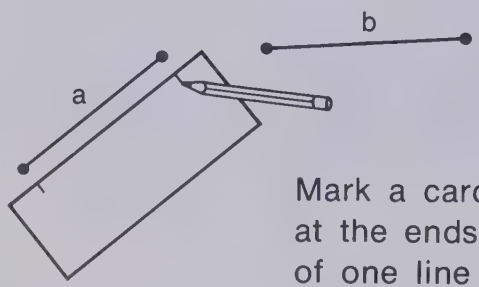
Line Segments

Line segments are **straight.**
They connect two points.

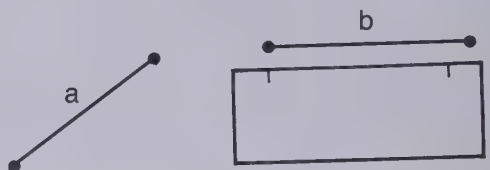
You can draw a line segment by drawing from point to point along a straight edge.



Some line segments are longer than others.
Here is a way to compare line segments a and b.



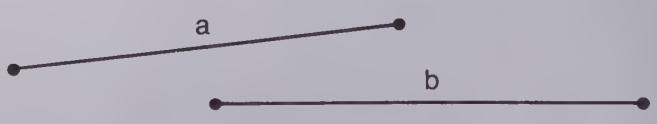
Mark a card at the ends of one line segment.



Compare.
Line segment b is longer than line segment a.

Working Together

1. Draw two points. Use the points and a straight edge to draw a line segment.
2. Draw three points. Draw line segments using two of the points at a time as **end points.**
3. Mark a straight edge at the end points of one of these line segments. Compare with the other line segment. Which is longer?



Exercises

Is it a line segment or not?

1.

2.

3.

4.

How many line segments are needed to show

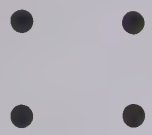
5. a triangle?

6. a square?

7. a rectangle?

8. a cube?

Draw sets of points as shown. Then draw line segments to connect the points in each set.

9. 

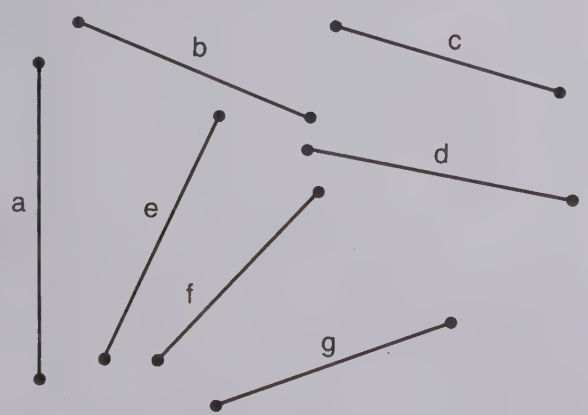
10.

11. How many line segments can be drawn *in all* using ?

12. How many line segments can be drawn *in all* using ?

For the line segments shown below,

13. name three pairs that are the same length.



14. Which of the above line segments is longest?

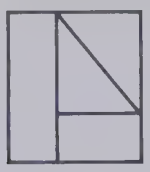
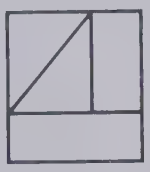
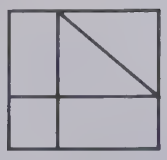
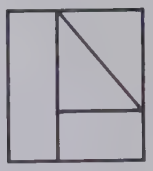
Add.

1.	24 + 35	**2.** 53 + 6
3.	323 + 25	**4.** 345 + 442
5.	78 + 8	**6.** 37 + 34
7.	443 + 39	**8.** 655 + 237
9.	95 + 14	**10.** 222 + 87
11.	256 + 491	**12.** 584 + 372
13.	75 + 98	**14.** 676 + 26
15.	196 + 397	**16.** 486 + 134
17.	231 + 269	**18.** 499 + 499
19.	$6.03 + 3.42	**20.** $2.28 + 6.64
21.	$3.87 + 1.61	**22.** $8.93 + 0.87
23.	$4.95 + 4.05	

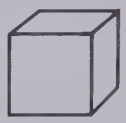
KEEPING SHARP

Checking Up

Find the two pictures that are exactly alike.

1. **a.**  **b.**  **c.**  **d.** 

Choose a name from the list to match each shape.

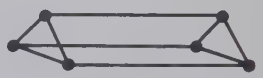
2. **3.** **4.** **5.** **6.** 

cone
cube
cylinder
pyramid
sphere

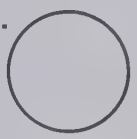
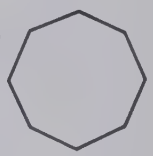
Copy and complete the chart for each shape.

	Number of faces	Number of vertices	Number of edges
7.	?	?	?
8.	?	?	?
9.	?	?	?

7. **8.**

9. 

Choose a name from the list to match each shape.

10. **11.** **12.**  **13.** **14.** 

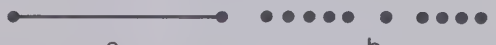
circle
octagon
pentagon
square
triangle

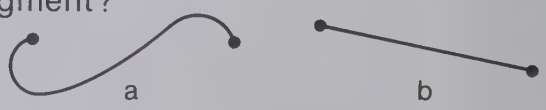
Use a straight edge and draw

15. a rectangle.

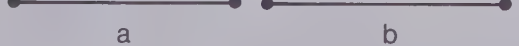
16. a hexagon.

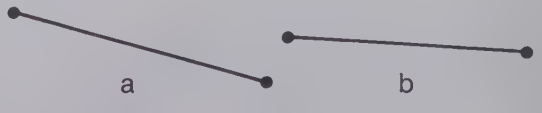
In each pair, which picture shows a line segment?

17. 

18. 

Are the line segments in each pair the same length?
If not, tell which is longer.

19. 

20. 

Checking Skills

Add.

1. 6 + 4	**2.** 3 + 9	**3.** 7 + 6
4. 8 + 8	**5.** 8 + 5	**6.** 5 + 7
7. 3 + 8	**8.** 9 + 7	**9.** 8 + 7
10. 8 + 4	**11.** 5 + 5	**12.** 9 + 9

Subtract.

13. 13 − 6	**14.** 16 − 7	**15.** 10 − 4
16. 12 − 7	**17.** 14 − 9	**18.** 15 − 7
19. 11 − 8	**20.** 12 − 6	**21.** 10 − 8
22. 12 − 4	**23.** 17 − 8	**24.** 11 − 7
25. 13 − 5	**26.** 13 − 9	**27.** 14 − 8

Add.

28. 24 + 13	**29.** 37 + 23	**30.** 375 + 74
31. \$1.45 + 1.79	**32.** \$1.29 + 2.73	

Add.

1. 9 + 6	**2.** 4 + 9	**3.** 3 + 7
4. 5 + 6	**5.** 7 + 7	**6.** 9 + 8
7. 8 + 6	**8.** 2 + 9	**9.** 9 + 5
10. 7 + 4	**11.** 6 + 6	**12.** 2 + 8

Subtract.

13. 15 − 6	**14.** 11 − 6	**15.** 10 − 9
16. 17 − 9	**17.** 12 − 8	**18.** 11 − 2
19. 16 − 8	**20.** 12 − 9	**21.** 14 − 5
22. 18 − 9	**23.** 12 − 5	**24.** 11 − 4
25. 13 − 7	**26.** 15 − 8	**27.** 13 − 8

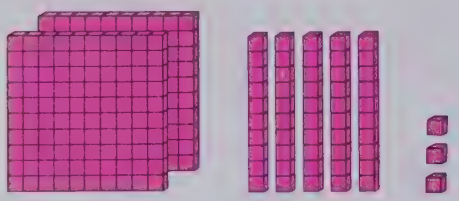
Add.

28. 146 + 43	**29.** 204 + 258	**30.** 382 + 134
31. \$2.57 + 0.58	**32.** \$4.67 + 1.79	

5 SUBTRACTION

No Regrouping

Subtract 132 from 253.



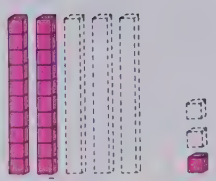
hundreds tens ones

$$\begin{array}{r} 253 \\ -\,132 \\ \hline \end{array}$$

Show 253 and 132 with their hundreds, tens, and ones lined up. Show the greater number first.

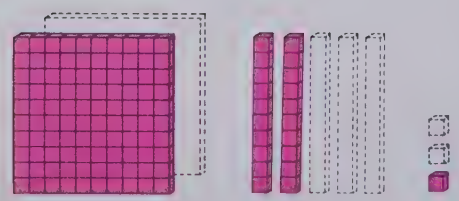
$$\begin{array}{r} 25\,3 \\ -\,13\,2 \\ \hline \quad\;\; 1 \end{array}$$

Subtract the ones.



$$\begin{array}{r} 2\,5\,3 \\ -\,1\,3\,2 \\ \hline \quad 2\,1 \end{array}$$

Subtract the tens.



$$\begin{array}{r} 2\,5\,3 \\ -\,1\,3\,2 \\ \hline 1\,2\,1 \end{array}$$

Subtract the hundreds.

253 minus 132 equals 121.

Working Together

Line up the hundreds, tens, and ones in vertical form.

1. 365 − 215 **2.** 258 − 43

Follow the steps.

3.

$$\begin{array}{r} 467 \\ -\ 137 \\ \hline \end{array}$$

Subtract ones.
Subtract tens.
Subtract hundreds.

Subtract.

4. 603 − 102 **5.** 123 − 12

6. $\begin{array}{r} 88 \\ -\ 57 \\ \hline \end{array}$ **7.** $\begin{array}{r} 465 \\ -\ 253 \\ \hline \end{array}$

Exercises

Show the numbers in vertical form and subtract.

1. 73 − 21 **2.** 85 − 40 **3.** 79 − 5 **4.** 94 − 34

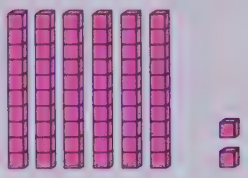
5. 168 − 123 **6.** 659 − 432 **7.** 928 − 305 **8.** 732 − 32

Subtract.

9. $\begin{array}{r} 858 \\ -\ 322 \\ \hline \end{array}$	**10.** $\begin{array}{r} 676 \\ -\ 53 \\ \hline \end{array}$	**11.** $\begin{array}{r} 66 \\ -\ 42 \\ \hline \end{array}$	**12.** $\begin{array}{r} 398 \\ -\ 368 \\ \hline \end{array}$	**13.** $\begin{array}{r} 58 \\ -\ 4 \\ \hline \end{array}$
14. $\begin{array}{r} 344 \\ -\ 220 \\ \hline \end{array}$	**15.** $\begin{array}{r} 649 \\ -\ 136 \\ \hline \end{array}$	**16.** $\begin{array}{r} 272 \\ -\ 51 \\ \hline \end{array}$	**17.** $\begin{array}{r} 738 \\ -\ 136 \\ \hline \end{array}$	**18.** $\begin{array}{r} 989 \\ -\ 851 \\ \hline \end{array}$
19. $\begin{array}{r} 65 \\ -\ 35 \\ \hline \end{array}$	**20.** $\begin{array}{r} 894 \\ -\ 254 \\ \hline \end{array}$	**21.** $\begin{array}{r} 854 \\ -\ 22 \\ \hline \end{array}$	**22.** $\begin{array}{r} 67 \\ -\ 66 \\ \hline \end{array}$	**23.** $\begin{array}{r} 689 \\ -\ 613 \\ \hline \end{array}$
24. $\begin{array}{r} 95 \\ -\ 44 \\ \hline \end{array}$	**25.** $\begin{array}{r} 958 \\ -\ 7 \\ \hline \end{array}$	**26.** $\begin{array}{r} 781 \\ -\ 741 \\ \hline \end{array}$	**27.** $\begin{array}{r} 923 \\ -\ 601 \\ \hline \end{array}$	**28.** $\begin{array}{r} 222 \\ -\ 111 \\ \hline \end{array}$

Subtraction, Regrouping Tens to Ones

Subtract 34 from 62.



$$\begin{array}{r} 62 \\ -\ 34 \\ \hline \end{array}$$

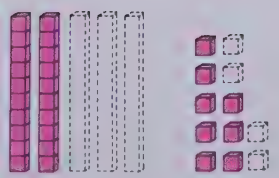
Show $62 - 34$ in vertical form.

$$\begin{array}{r} {\scriptstyle 5\ 12} \\ \not{6}\ \not{2} \\ -\ 34 \\ \hline \end{array}$$

Cannot subtract 4 ones from 2 ones. Regroup 6 tens, 2 ones as 5 tens, 12 ones.

$$\begin{array}{r} {\scriptstyle 5\ 12} \\ \not{6}\ \not{2} \\ -\ 3\ 4 \\ \hline 8 \end{array}$$

Subtract the ones.



$$\begin{array}{r} {\scriptstyle 5\ 12} \\ \not{6}\ \not{2} \\ -\ 3\ 4 \\ \hline 2\ 8 \end{array}$$

Subtract the tens.

34 subtracted from 62 is 28.

Working Together

Follow the steps.

1.
$$\begin{array}{r} 63 \\ -\,28 \\ \hline \end{array}$$

← Regroup 6 tens, 3 ones as 5 tens, 13 ones.

Subtract 8 ones from 13 ones.

Subtract 2 tens from 5 tens.

2.
$$\begin{array}{r} 91 \\ -\,65 \\ \hline \end{array}$$

← Regroup to show one less ten and 10 more ones.

Subtract ones.

Subtract tens.

Subtract.

3. $\begin{array}{r} 55 \\ -\ 9 \\ \hline \end{array}$ **4.** $\begin{array}{r} 80 \\ -\,56 \\ \hline \end{array}$ **5.** $\begin{array}{r} 237 \\ -\ 28 \\ \hline \end{array}$ **6.** $\begin{array}{r} 763 \\ -\,206 \\ \hline \end{array}$

Exercises

Subtract.

1. $91 - 73$ **2.** $15 - 7$ **3.** $76 - 34$ **4.** $351 - 28$

5. $664 - 415$ **6.** $61 - 37$ **7.** $882 - 503$ **8.** $82 - 76$

9. $\begin{array}{r} 42 \\ -\,24 \\ \hline \end{array}$ **10.** $\begin{array}{r} 27 \\ -\ 9 \\ \hline \end{array}$ **11.** $\begin{array}{r} 880 \\ -\ 65 \\ \hline \end{array}$ **12.** $\begin{array}{r} 77 \\ -\,43 \\ \hline \end{array}$ **13.** $\begin{array}{r} 73 \\ -\,25 \\ \hline \end{array}$

14. $\begin{array}{r} 891 \\ -\,836 \\ \hline \end{array}$ **15.** $\begin{array}{r} 90 \\ -\,27 \\ \hline \end{array}$ **16.** $\begin{array}{r} 94 \\ -\ 9 \\ \hline \end{array}$ **17.** $\begin{array}{r} 245 \\ -\ 18 \\ \hline \end{array}$ **18.** $\begin{array}{r} 74 \\ -\,36 \\ \hline \end{array}$

19. $\begin{array}{r} 94 \\ -\,62 \\ \hline \end{array}$ **20.** $\begin{array}{r} 671 \\ -\,154 \\ \hline \end{array}$ **21.** $\begin{array}{r} 66 \\ -\,48 \\ \hline \end{array}$ **22.** $\begin{array}{r} 83 \\ -\,19 \\ \hline \end{array}$ **23.** $\begin{array}{r} 827 \\ -\,112 \\ \hline \end{array}$

24. $\begin{array}{r} 453 \\ -\ 17 \\ \hline \end{array}$ **25.** $\begin{array}{r} 75 \\ -\ 6 \\ \hline \end{array}$ **26.** $\begin{array}{r} 474 \\ -\,365 \\ \hline \end{array}$ **27.** $\begin{array}{r} 50 \\ -\,43 \\ \hline \end{array}$ **28.** $\begin{array}{r} 873 \\ -\,404 \\ \hline \end{array}$

Practice

Trains are made up in a railroad sorting yard.

1. 289 boxcars. 62 taken for a train. How many boxcars are left?

2. 90 cars in a train. 62 are boxcars. How many are not boxcars?

3. 23 cabooses. 9 trains take one caboose each. How many cabooses are left?

4. 50 cattle cars. 22 are loaded. How many are empty?

5. 68 cars are being sorted by a switch engine. It puts 29 on one track. How many are left to be sorted?

6. 389 autos to load onto car carriers. There are spaces for just 276. How many autos cannot be loaded?

*__7.__ 76 grain cars are needed. 25 are on one track. 28 are on another track. How many more are needed?

*__8.__ 963 cars in the yard. 545 taken out one day. 319 come in that day. How many cars are there at the end of the day?

Subtract.

9. $73 - 49$ **10.** $45 - 4$

11. $67 - 46$ **12.** $384 - 28$

13. $61 - 5$ **14.** $867 - 523$

15. $680 - 348$ **16.** $688 - 62$

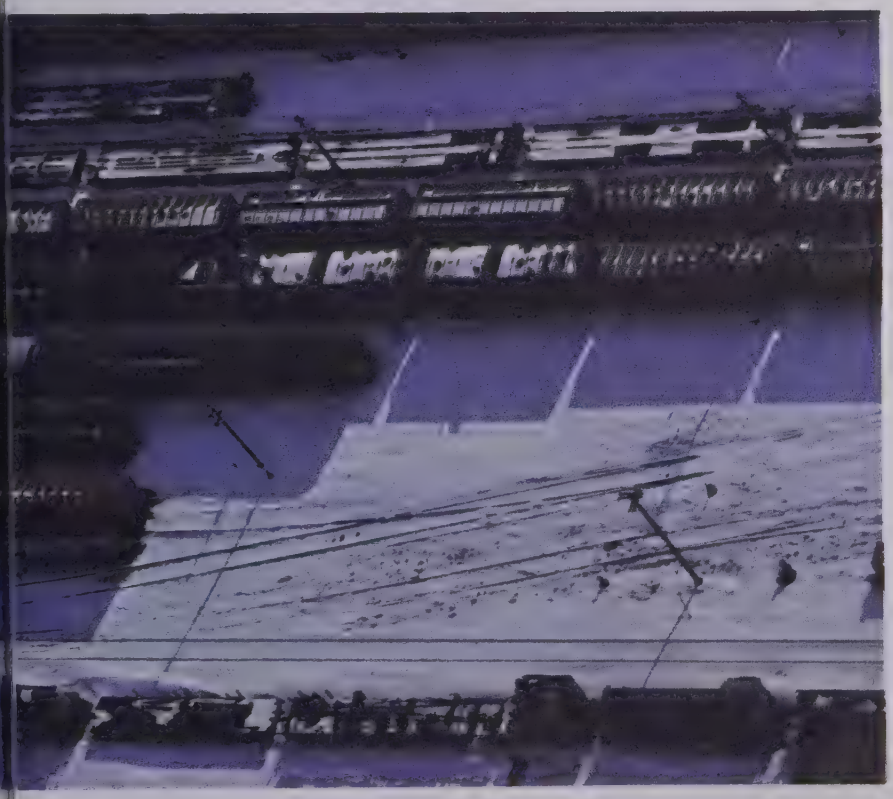
17. $\begin{array}{r} 91 \\ -\ 37 \\ \hline \end{array}$ **18.** $\begin{array}{r} 299 \\ -\ 57 \\ \hline \end{array}$ **19.** $\begin{array}{r} 33 \\ -\ 8 \\ \hline \end{array}$ **20.** $\begin{array}{r} 90 \\ -\ 36 \\ \hline \end{array}$

21. $\begin{array}{r} 472 \\ -\ 35 \\ \hline \end{array}$ **22.** $\begin{array}{r} 89 \\ -\ 4 \\ \hline \end{array}$ **23.** $\begin{array}{r} 545 \\ -\ 341 \\ \hline \end{array}$ **24.** $\begin{array}{r} 996 \\ -\ 89 \\ \hline \end{array}$

25. $\begin{array}{r} 778 \\ -\ 35 \\ \hline \end{array}$ **26.** $\begin{array}{r} 476 \\ -\ 208 \\ \hline \end{array}$ **27.** $\begin{array}{r} 73 \\ -\ 17 \\ \hline \end{array}$ **28.** $\begin{array}{r} 93 \\ -\ 66 \\ \hline \end{array}$

29. $\begin{array}{r} 194 \\ -\ 45 \\ \hline \end{array}$ **30.** $\begin{array}{r} 769 \\ -\ 452 \\ \hline \end{array}$ **31.** $\begin{array}{r} 54 \\ -\ 7 \\ \hline \end{array}$ **32.** $\begin{array}{r} 95 \\ -\ 32 \\ \hline \end{array}$

33. $\begin{array}{r} 82 \\ -\ 54 \\ \hline \end{array}$ **34.** $\begin{array}{r} 387 \\ -\ 285 \\ \hline \end{array}$ **35.** $\begin{array}{r} 398 \\ -\ 54 \\ \hline \end{array}$ **36.** $\begin{array}{r} 984 \\ -\ 176 \\ \hline \end{array}$



Start with a two-digit number.

like this

25

Reverse the order of the digits.

like this

52

Subtract the lesser number from the greater.

$$\begin{array}{r} 52 \\ -\ 25 \\ \hline \end{array}$$

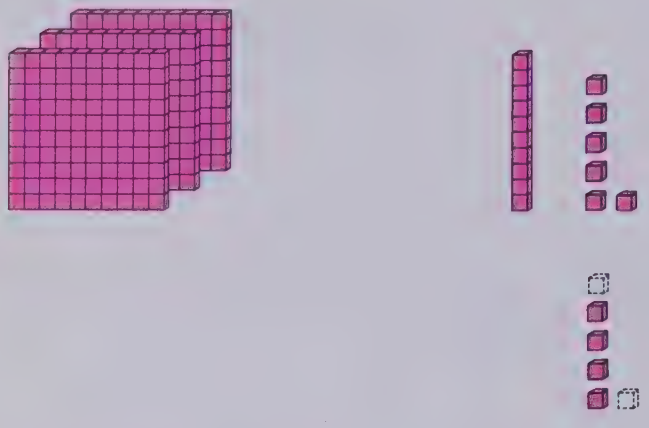
What is the sum of the digits in your result?

Try this five times. Start with a different two-digit number each time.

try this

Subtraction, Regrouping Hundreds to Tens

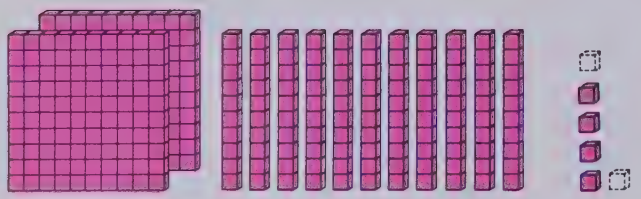
Subtract 122 from 316.



$$\begin{array}{r} 316 \\ -122 \\ \hline 4 \end{array}$$

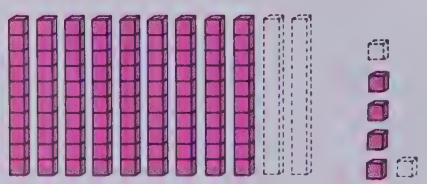
Show 316 − 122 in vertical form.

Subtract the ones.



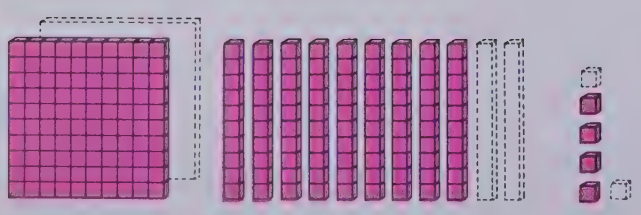
$$\begin{array}{r} {}^{2}\not{3}\,{}^{11}\not{1}6 \\ -122 \\ \hline 4 \end{array}$$

Cannot subtract 2 tens from 1 ten. Regroup 3 hundreds, 1 ten as 2 hundreds, 11 tens.



$$\begin{array}{r} {}^{2}\not{3}\,{}^{11}\not{1}6 \\ -122 \\ \hline 94 \end{array}$$

Subtract the tens.



$$\begin{array}{r} {}^{2}\not{3}\,{}^{11}\not{1}6 \\ -122 \\ \hline 194 \end{array}$$

Subtract the hundreds.

316 − 122 = 194

Working Together

Follow the steps.

1. Subtract ones.

Regroup 4 hundreds, 5 tens as 3 hundreds, 15 tens.

Subtract 9 tens from 15 tens.

Subtract 2 hundreds from 3 hundreds.

$$\begin{array}{r} 458 \\ -\ 293 \\ \hline \end{array}$$

2. Subtract ones.

Regroup to show one less hundred and 10 more tens.

Subtract tens.

Subtract hundreds.

$$\begin{array}{r} 605 \\ -\ 165 \\ \hline \end{array}$$

Subtract.

3. $\begin{array}{r} 485 \\ -\ 193 \\ \hline \end{array}$ **4.** $\begin{array}{r} 712 \\ -\ 60 \\ \hline \end{array}$ **5.** $\begin{array}{r} 605 \\ -\ 535 \\ \hline \end{array}$

Exercises

Do three exercises on each banner. Write the result for the fourth one by using the pattern.

1. $\begin{array}{r} 837 \\ -\ 694 \\ \hline \end{array}$ **2.** $\begin{array}{r} 219 \\ -\ 75 \\ \hline \end{array}$ **3.** $\begin{array}{r} 426 \\ -\ 281 \\ \hline \end{array}$ **4.** $\begin{array}{r} 609 \\ -\ 463 \\ \hline \end{array}$

5. $\begin{array}{r} 858 \\ -\ 572 \\ \hline \end{array}$ **6.** $\begin{array}{r} 726 \\ -\ 340 \\ \hline \end{array}$ **7.** $\begin{array}{r} 569 \\ -\ 83 \\ \hline \end{array}$ **8.** $\begin{array}{r} 707 \\ -\ 121 \\ \hline \end{array}$

9. $\begin{array}{r} 869 \\ -\ 495 \\ \hline \end{array}$ **10.** $\begin{array}{r} 445 \\ -\ 82 \\ \hline \end{array}$ **11.** $\begin{array}{r} 527 \\ -\ 153 \\ \hline \end{array}$ **12.** $\begin{array}{r} 939 \\ -\ 576 \\ \hline \end{array}$

*13. Make up a fifth exercise to fit the pattern for each banner.

Practice

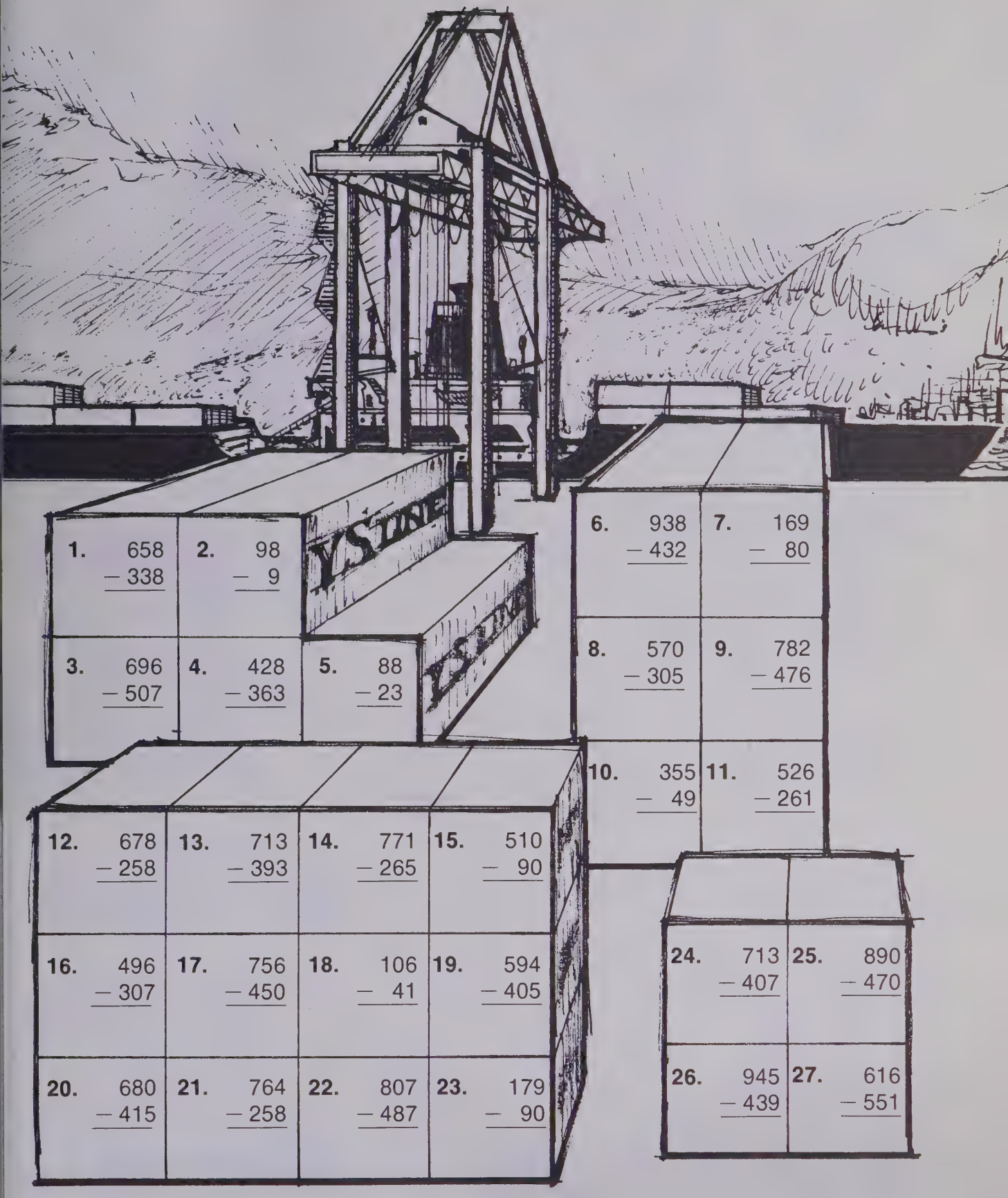
Containers are used to ship cargo on land and sea.

Subtract as shown on each container. Match each result to a number in this table. Then name the place to where the container will be shipped.

Example:

1. 658
− 338
320 Thunder Bay

Difference	Ship to
265	St. John's
306	Charlottetown
89	Halifax
420	Saint John
65	Port Cartier
189	Montreal
320	Thunder Bay
506	Vancouver



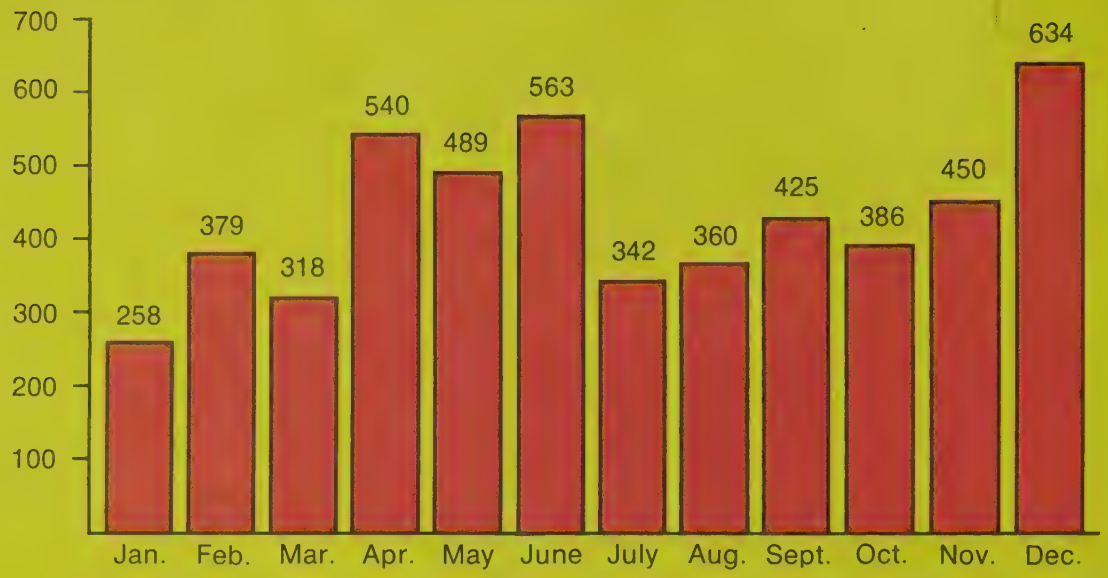
1. 658 − 338	**2.** 98 − 9		
3. 696 − 507	**4.** 428 − 363	**5.** 88 − 23	

6. 938 − 432	**7.** 169 − 80		
8. 570 − 305	**9.** 782 − 476		
10. 355 − 49	**11.** 526 − 261		

12. 678 − 258	**13.** 713 − 393	**14.** 771 − 265	**15.** 510 − 90
16. 496 − 307	**17.** 756 − 450	**18.** 106 − 41	**19.** 594 − 405
20. 680 − 415	**21.** 764 − 258	**22.** 807 − 487	**23.** 179 − 90

24. 713 − 407	**25.** 890 − 470
26. 945 − 439	**27.** 616 − 551

Subtraction, Two Regroupings



The graph shows the number of deliveries each month. How many more were made in the busiest month than in the slowest month?

634 deliveries in December.
258 deliveries in January.
To find how many more, subtract

$$\begin{array}{r} 634 \\ -\ 258 \\ \hline \end{array}$$

Cannot subtract 8 ones from 4 ones. Regroup 3 tens, 4 ones as 2 tens, 14 ones.

$$\begin{array}{r} {\scriptstyle 2\ 14} \\ 6\not{3}\not{4} \\ -\ 258 \\ \hline \end{array}$$

Subtract ones.

$$\begin{array}{r} {\scriptstyle 2\ 14} \\ 6\not{3}\not{4} \\ -\ 258 \\ \hline 6 \end{array}$$

Cannot subtract 5 tens from 2 tens. Regroup 6 hundreds, 2 tens as 5 hundreds, 12 tens.

$$\begin{array}{r} {\scriptstyle 5\ 12\ 14} \\ 6\not{3}\not{4} \\ -\ 258 \\ \hline 6 \end{array}$$

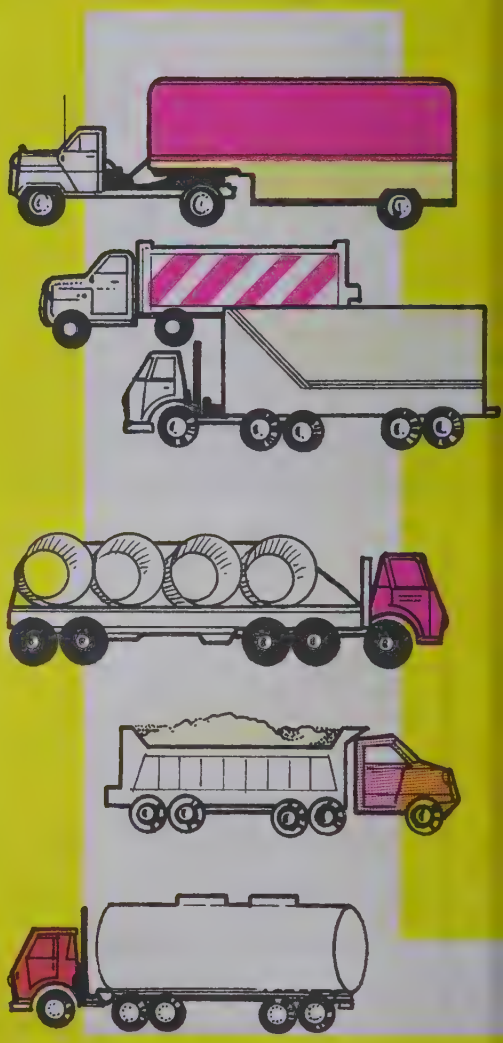
Subtract tens.

$$\begin{array}{r} {\scriptstyle 5\ 12\ 14} \\ 6\not{3}\not{4} \\ -\ 258 \\ \hline 76 \end{array}$$

Subtract hundreds.

$$\begin{array}{r} {\scriptstyle 5\ 12\ 14} \\ 6\not{3}\not{4} \\ -\ 258 \\ \hline 376 \end{array}$$

376 more deliveries were made in the busiest month than in the slowest month.



Working Together

Regroup to show 1 less hundred and 10 more tens. Then complete each exercise.

1.
$$\begin{array}{r} {\scriptstyle 1\,13} \\ 6\not{2}\not{3} \\ -\ 3\,6\,5 \\ \hline 8 \end{array}$$

2.
$$\begin{array}{r} {\scriptstyle 2\,14} \\ 3\not{3}\not{4} \\ -\ 6\,7 \\ \hline 7 \end{array}$$

Subtract.

3. $\begin{array}{r} 433 \\ -\ 177 \\ \hline \end{array}$ **4.** $\begin{array}{r} 320 \\ -\ 89 \\ \hline \end{array}$ **5.** $\begin{array}{r} 546 \\ -\ 248 \\ \hline \end{array}$ **6.** $\begin{array}{r} 247 \\ -\ 179 \\ \hline \end{array}$

Exercises

Which month had more deliveries? Subtract to find how many more.

1. May or June
2. March or April
3. December or June
4. January or February
5. November or January
***6.** December, or January and February together

Subtract.

7. 326 − 77
8. 912 − 455
9. 93 − 47
10. 214 − 56
11. 536 − 284
12. 750 − 371

13. $\begin{array}{r} 427 \\ -\ 28 \\ \hline \end{array}$ **14.** $\begin{array}{r} 877 \\ -\ 532 \\ \hline \end{array}$ **15.** $\begin{array}{r} 692 \\ -\ 394 \\ \hline \end{array}$ **16.** $\begin{array}{r} 385 \\ -\ 257 \\ \hline \end{array}$

17. $\begin{array}{r} 342 \\ -\ 148 \\ \hline \end{array}$ **18.** $\begin{array}{r} 509 \\ -\ 362 \\ \hline \end{array}$ **19.** $\begin{array}{r} 125 \\ -\ 37 \\ \hline \end{array}$ **20.** $\begin{array}{r} 615 \\ -\ 188 \\ \hline \end{array}$

21. $\begin{array}{r} 910 \\ -\ 334 \\ \hline \end{array}$ **22.** $\begin{array}{r} 534 \\ -\ 38 \\ \hline \end{array}$ **23.** $\begin{array}{r} 473 \\ -\ 136 \\ \hline \end{array}$ **24.** $\begin{array}{r} 625 \\ -\ 49 \\ \hline \end{array}$

25. $\begin{array}{r} 751 \\ -\ 196 \\ \hline \end{array}$ **26.** $\begin{array}{r} 482 \\ -\ 199 \\ \hline \end{array}$ **27.** $\begin{array}{r} 272 \\ -\ 86 \\ \hline \end{array}$ **28.** $\begin{array}{r} 650 \\ -\ 257 \\ \hline \end{array}$

Practice

Subtract.

1. 959 − 612 **2.** 70 − 12 **3.** 336 − 74

4. 872 − 556 **5.** 564 − 173 **6.** 782 − 645

7. 67 − 1	**8.** 96 − 52	**9.** 358 − 50	**10.** 978 − 152
11. 43 − 28	**12.** 791 − 35	**13.** 23 − 9	**14.** 873 − 664
15. 480 − 36	**16.** 977 − 338	**17.** 519 − 24	**18.** 509 − 457
19. 605 − 394	**20.** 629 − 88	**21.** 327 − 247	**22.** 966 − 491
23. 431 − 73	**24.** 914 − 137	**25.** 631 − 296	**26.** 441 − 164
27. 351 − 68	**28.** 571 − 289	**29.** 968 − 769	**30.** 922 − 473

Solve.

31. 250 cars in the lot. 184 driven away. How many cars are left?

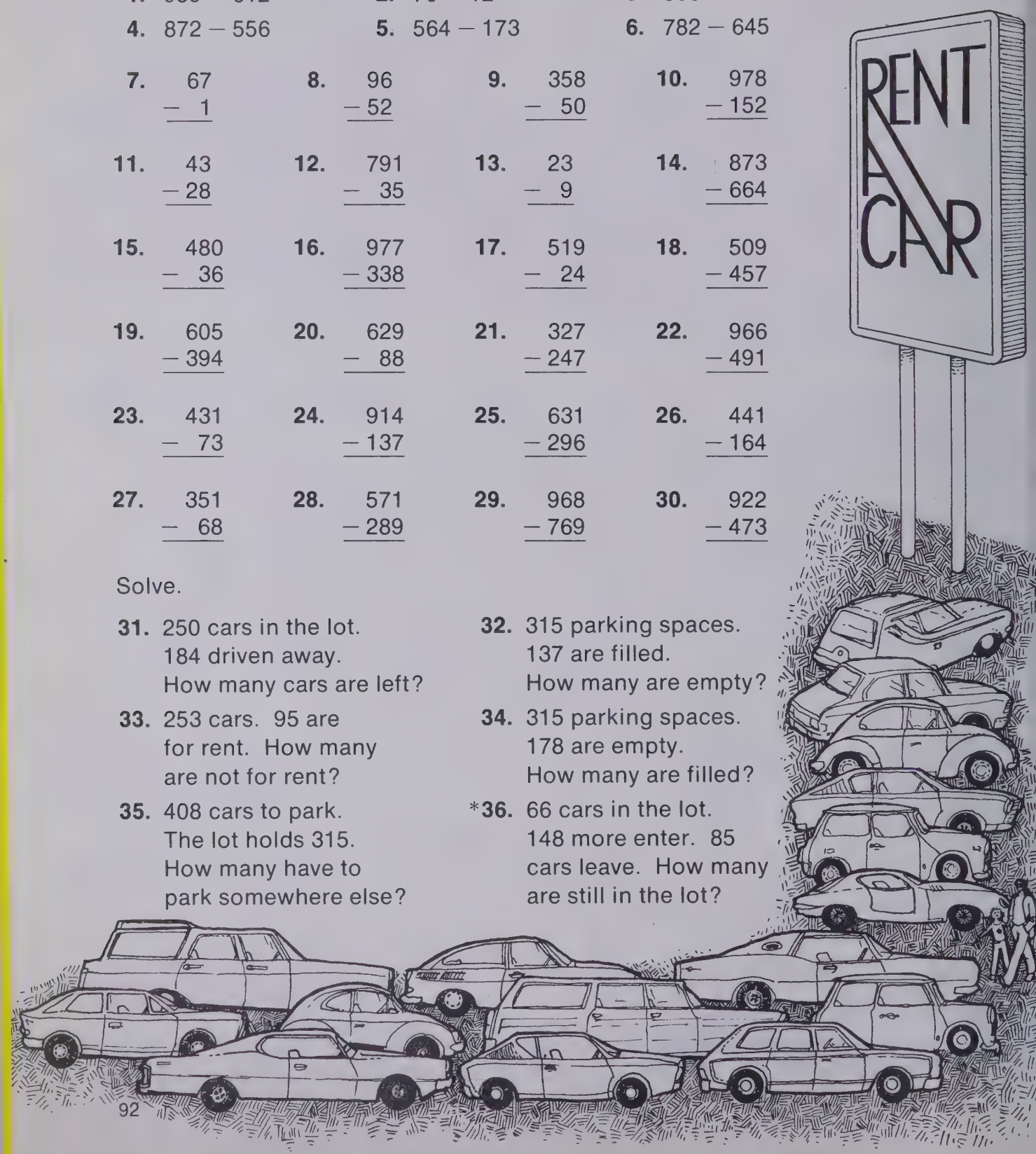
32. 315 parking spaces. 137 are filled. How many are empty?

33. 253 cars. 95 are for rent. How many are not for rent?

34. 315 parking spaces. 178 are empty. How many are filled?

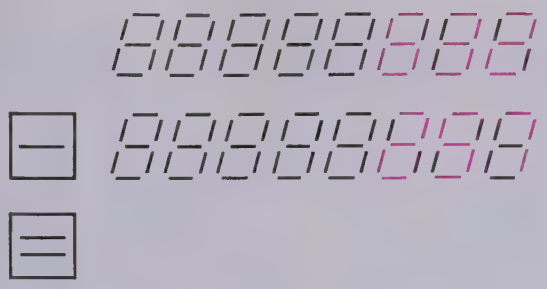
35. 408 cars to park. The lot holds 315. How many have to park somewhere else?

*__36.__ 66 cars in the lot. 148 more enter. 85 cars leave. How many are still in the lot?

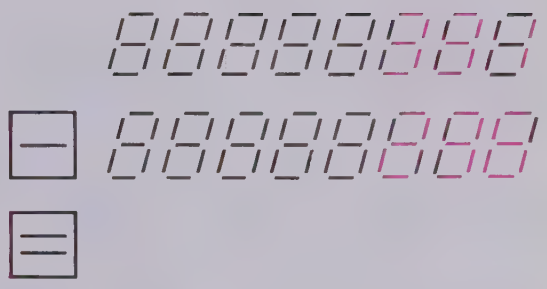


What would the calculator show for the difference?

37.



38.



Reports help companies keep track of business.

This table is from a weekly report made for a car-rental company. Use the table to help you answer the questions.

	Large cars	Small cars
Daily rentals	277	325
Weekly rentals	82	109

1. Were there more rentals of large cars or of small cars? How many more?
2. Were there more cars rented by the day or by the week? How many more?
3. Of all the cars rented, 716 have been returned. How many are still out?

PROBLEM SOLVING

Subtraction, Regrouping with Zero

There were 506 dump trucks. 287 were shipped to fill orders. How many dump trucks are left?

Subtract 506 − 287

$$\begin{array}{r} {\scriptstyle 4\ 9\ 16} \\ \not{5}\not{0}\not{6} \\ -287 \\ \hline \end{array}$$

Think of 506 as 50 tens and 6 ones.

Regroup 50 tens, 6 ones as 49 tens, 16 ones.

$$\begin{array}{r} {\scriptstyle 4\ 9\ 16} \\ \not{5}\not{0}\not{6} \\ -287 \\ \hline 219 \end{array}$$

Subtract ones.
Subtract tens.
Subtract hundreds.

There are 219 dump trucks left.

Working Together

Regroup 402 as $\overset{3\ 9\ 12}{\not{4}\not{0}\not{2}}$ and subtract.

1. 402 − 167

2. 402 − 38

3. 402 − 346

Regroup 600 as $\overset{5\ 9\ 10}{\not{6}\not{0}\not{0}}$ and subtract.

4. 600 − 246

5. 600 − 97

Subtract.

6. 904 − 326

7. 700 − 412

8. 303 − 245

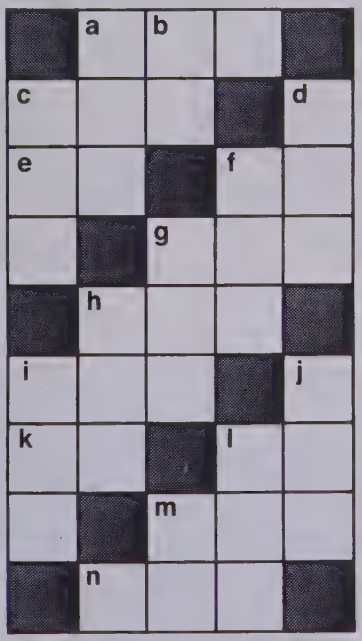
Exercises

Solve.

1. There are 483 bulldozers. There are orders for 600 bulldozers. How many more bulldozers are needed?

2. There are 219 dump trucks and 404 end loaders. How many more end loaders than dump trucks are there?

Copy this puzzle on paper and complete.



Across

a. 920 − 295
c. 971 − 462
e. 451 − 379
f. 132 − 64
g. 548 − 173
h. 896 − 429
i. 736 − 398
j. 506 − 499
k. 132 − 96
l. 712 − 654
m. 904 − 98
n. 847 − 177

Down

a. 900 − 298
b. 66 − 37
c. 841 − 268
d. 256 − 71
f. 982 − 305
g. 407 − 39
h. 828 − 392
i. 900 − 563
j. 915 − 129
l. 736 − 236
m. 305 − 218
n. 523 − 517

Subtracting Amounts of Money

Peter's sister drives a taxi. One ride cost $3.75. The rider gave her a five-dollar bill. How much did Peter's sister give back?

Subtract $3.75 from $5.00.

$$\begin{array}{r} {\scriptstyle 4\ \ 9\ 10} \\ \$5.\cancel{0}\cancel{0} \\ -\ 3.75 \\ \hline \$1.25 \end{array}$$

Peter's sister gave back $1.25.

Working Together

Line up the dollars and cents in vertical form.

1. $4.09 − $2.53 **2.** $7.68 − $5.23

Subtract.

3. $6.07 − 2.58 **4.** $5.23 − 4.35

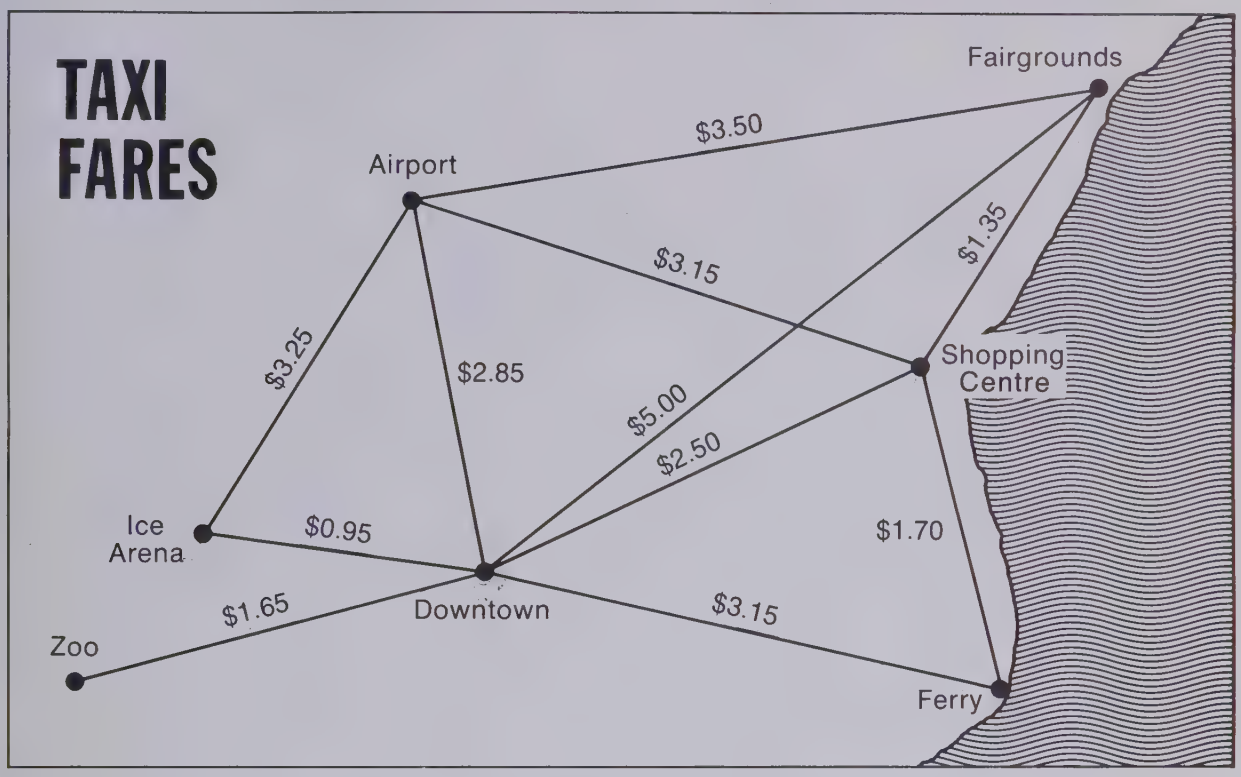
Exercises

Subtract.

1. $5.68 − $3.25 **2.** $7.15 − $4.30 **3.** $5.05 − $2.98

4. $7.23 − 4.58 **5.** $8.50 − 3.75 **6.** $6.23 − 4.99 **7.** $3.08 − 1.79

Peter's sister has this chart in her taxi.
Use it to solve the problems.



8. From the airport, does it cost more to go downtown or to the shopping centre? How much more?

9. To go to the ferry, does it cost more from downtown or from the shopping centre? How much more?

10. For a trip from downtown to the zoo, how much does a rider get back from $5.00?

11. Does it cost more to go from the airport to the fairgrounds or from the zoo to downtown? How much more?

***12.** Does it cost more to go from the airport to the fairgrounds, or from the ferry to the fairgrounds? How much more?

***13.** Does it cost less to go from the airport to the ferry through downtown or past the shopping centre? How much less?

***14.** Which way from the ice arena to the fairgrounds costs the least?

***15.** One rider went from the ferry to downtown, and then to the shopping centre. How much did the rider get back from $7.00?

Solving Problems in Two Steps

Sometimes two steps are needed to solve a problem.

Example: A store had 208 ice cream bars. It sold 132. The ice cream company delivered 288 more. Now how many ice cream bars are in the store?

Solve. Show two steps for each problem.

1. A truck had 800 boxes. It delivered 288 to the first store and 345 to the second store. How many boxes are left on the truck?
2. 137 cars were in the parking lot. 65 more entered. 108 left. Now how many cars are in the lot?
3. A train had 75 boxcars. 38 were taken off at the first stop. 55 were taken on. Now how many boxcars does the train have?
4. 58 ships unloaded in June. 77 unloaded in July. 136 unloaded in August. How many more unloaded in August than in June and July together?
5. Kevin had $5.00. He spent $2.89. He earned $3.50 more. Now how much does Kevin have?
6. Violet took $5.00 to the shopping center. She spent $1.47 in one store and $2.75 in another. How much money does Violet have left?

PROBLEM SOLVING

Checking Up

Subtract.

1. 76 − 61

2. 278 − 35

3. 696 − 423

4. 484 − 132

5. 74 − 55

6. 44 − 7

7. 280 − 24

8. 492 − 318

9. 329 − 51

10. 616 − 262

11. 407 − 84

12. 669 − 385

13. 932 − 234

14. 813 − 598

15. 536 − 97

16. 630 − 462

17. 705 − 79

18. 400 − 236

19. 404 − 46

20. 600 − 103

21. $9.83 − 6.16

22. $3.23 − 1.71

23. $6.23 − 0.84

24. $9.00 − 4.87

Solve.

25. 134 dump trucks.
179 delivery trucks.
How many more delivery trucks are there?

26. 450 deliveries in November.
634 deliveries in December.
How many fewer deliveries were there in November?

27. 206 buses.
32 need repairs.
How many buses do not need repairs?

28. 174 buses running.
88 are filled with riders. How many are not filled?

29. 208 riders got on the train at the first stop.
92 got on at the second stop. How many more got on at the first stop?

30. 300 people on the train.
142 get off.
How many people are left on the train?

31. A one-way ticket costs $2.25.
How much does a rider get back from $5.00?

32. A return ticket costs $3.37.
How much does a rider get back from $5.02?

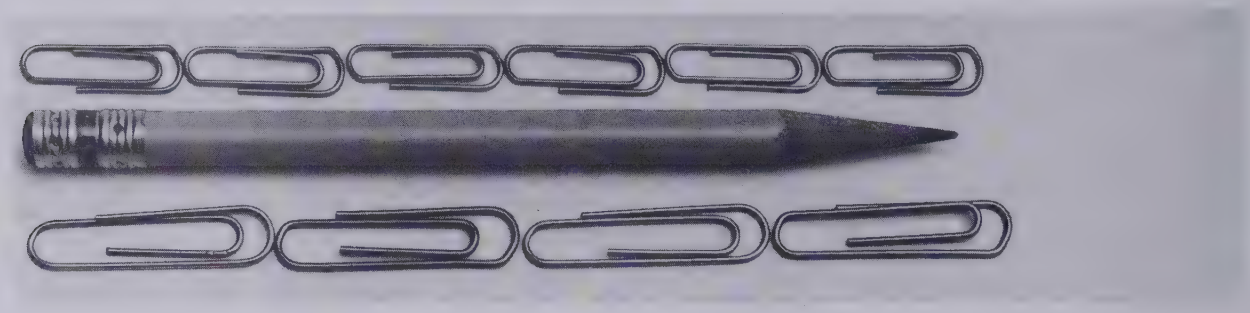
6 MEASUREMENT

Measuring Length in Centimetres

Andy and Michelle used paper clips to measure the pencil.

The pencil is about 6 clips long.

The pencil is about 4 clips long.

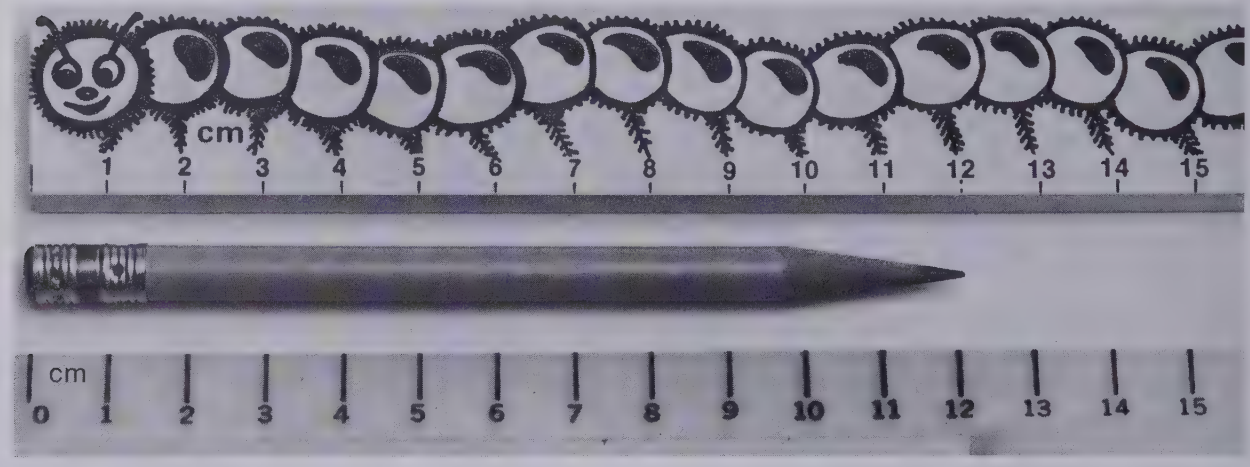


Their results were different because paper clips are not standard units of **length**.

Pearl and Marlys used rulers marked in **centimetres** to measure the pencil.

The pencil is about 12 cm long.

I agree.

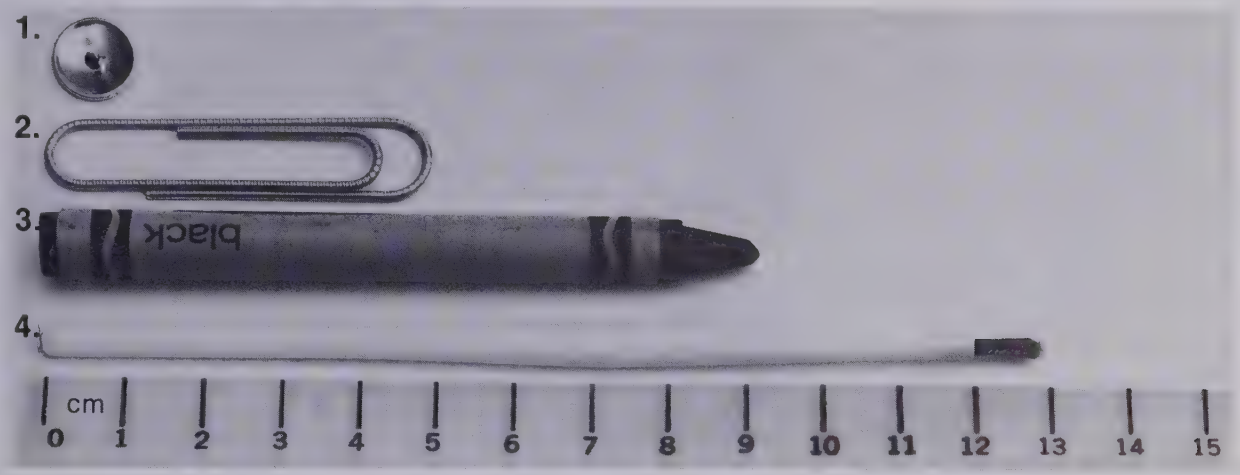


Their results were the same because centimetres are standard units of length.

A centimetre is the same length anywhere in the world. The symbol, cm, stands for "centimetres".

Working Together

Use the centimetre ruler. Give the length of each object to the nearest centimetre.



Use a centimetre ruler.
Measure each line segment.

5. ●——————● **6.** ●——————————●

Exercises

Use a centimetre ruler.
Measure each line segment.

1. ●——————● **2.** ●——————●

3. ●——————● **4.** ●——————●

5. ●——● **6.** ●——————●

Draw line segments having these lengths.

7. 1 cm **8.** 3 cm **9.** 9 cm **10.** 13 cm **11.** 17 cm

Is the length closer
to 6 cm or to 7 cm?

12. ●——————● **13.** ●——————●

Measure each line segment
to the nearest centimetre.

14. ●——————● **15.** ●——————●

Estimating Length in Centimetres

The motorcycle can jump about 60 cm. Are the ramps less than 60 cm apart?

Working Together

Which length shown on the chart would be most useful for estimating each of these?

1. the height of the room
2. the distance from your desk to the chalkboard
3. the length of the table

A. the number of centimetres in your hand span

B. the number of centimetres in your height

C. the number of centimetres you walk in one step

Which is the best estimate for the length of this line segment,

4. 2 cm, 12 cm, or 22 cm?

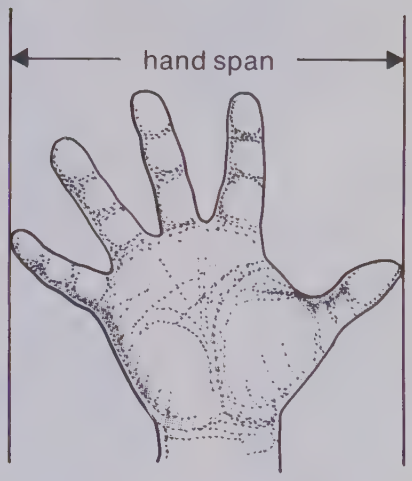
Estimate the length of the line segment. Then measure to check.

5.

Use an unmarked straight edge.

6. Draw a line segment that you estimate to be 10 cm long. Measure with a ruler to check.

Daryl knows that his hand span is about 20 cm. This helps him **estimate** that the ramps are less than 60 cm apart.



Exercises

Estimate the length of each line segment. Write each estimate in a table like the one shown. Then measure each line segment and write the measurement in your table.

	Estimate	Measurement
1.	▒▒ cm	▒▒ cm
2.	▒▒ cm	▒▒ cm

1.

2. **3.**

4. **5.**

Use an unmarked straight edge. Draw line segments you estimate to be these lengths. Then measure each line segment to check.

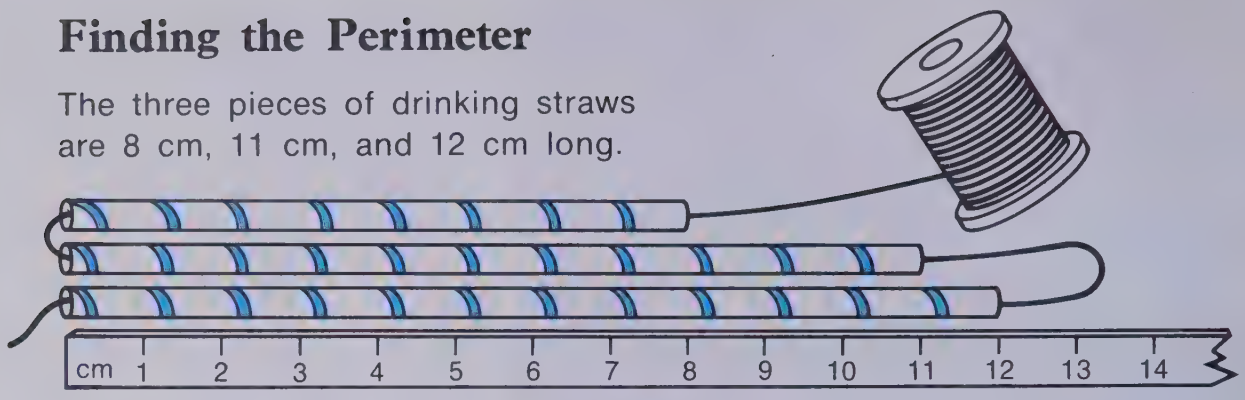
6. 16 cm **7.** 6 cm **8.** 9 cm **9.** 13 cm **10.** 5 cm

Estimate each of these. Then measure to check.

11. the length of your desk
12. the thickness of your book
13. the length of this page
14. the width of this page
15. the width of a nickel
16. the height of one stair

Finding the Perimeter

The three pieces of drinking straws are 8 cm, 11 cm, and 12 cm long.

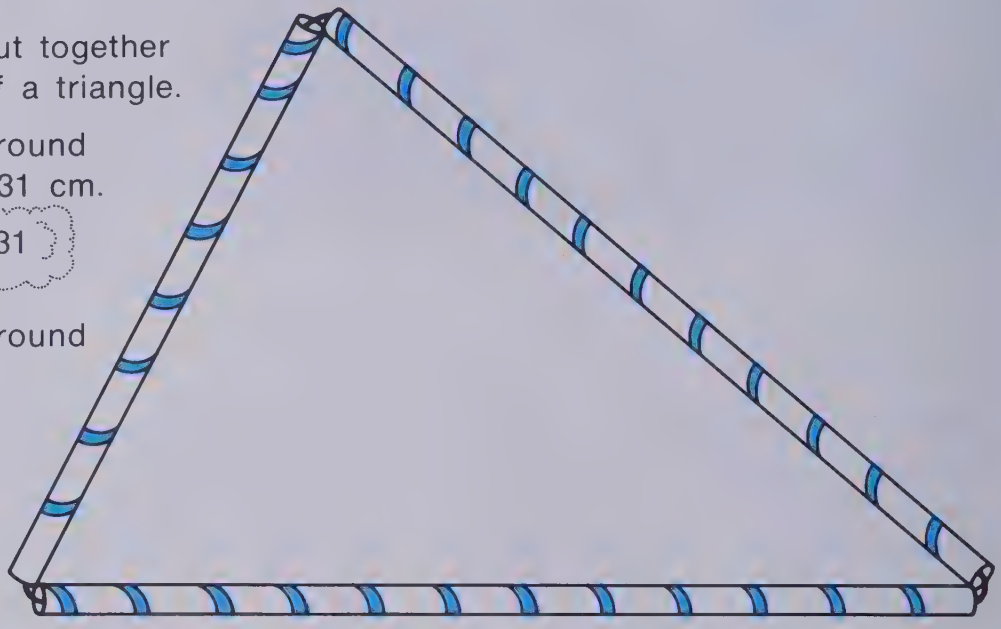


They can be put together in the shape of a triangle.

The distance around the triangle is 31 cm.

$8 + 11 + 12 = 31$

The distance around a shape is its **perimeter.**

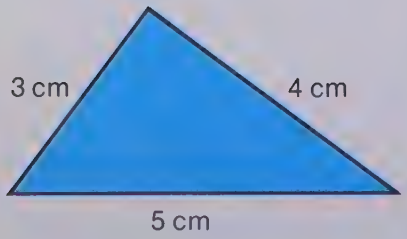


The perimeter of this triangle is 31 cm.

Working Together

Find the perimeter of each shape.

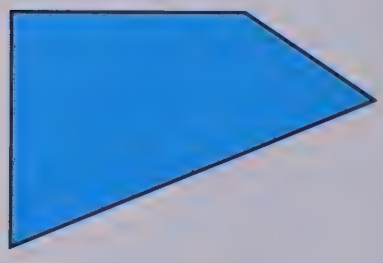
1.



2.

Each side is marked in centimetres.

3.

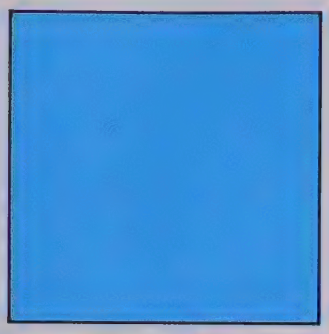


Measure each side first.

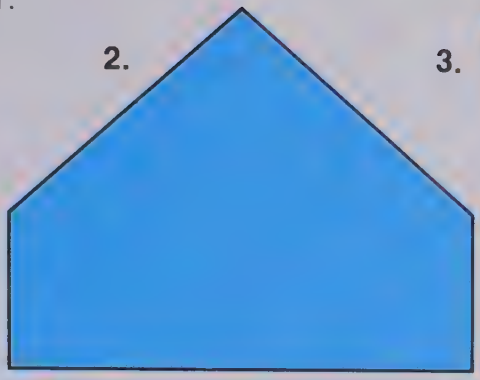
Exercises

For each shape, measure each side and find the perimeter.

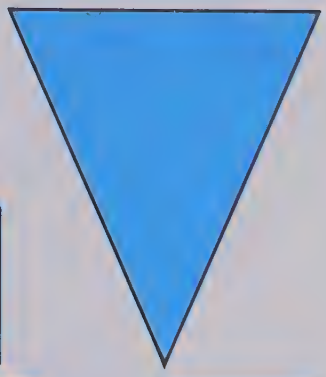
1.



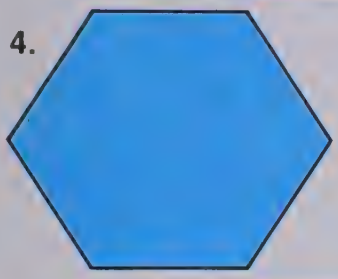
2.



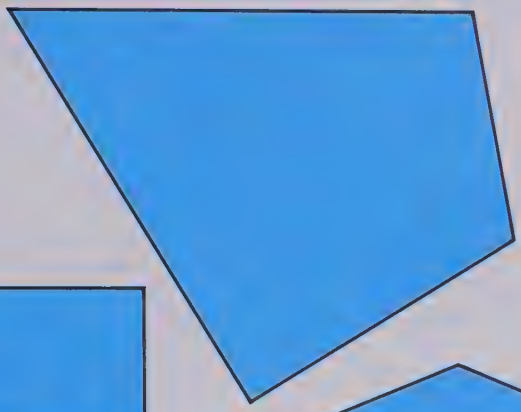
3.



4.

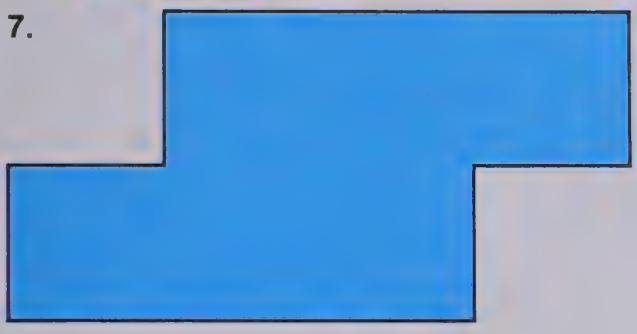


5.

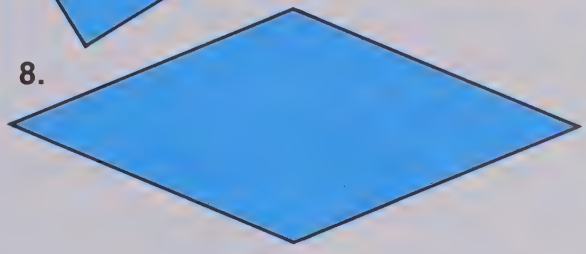


6.

7.

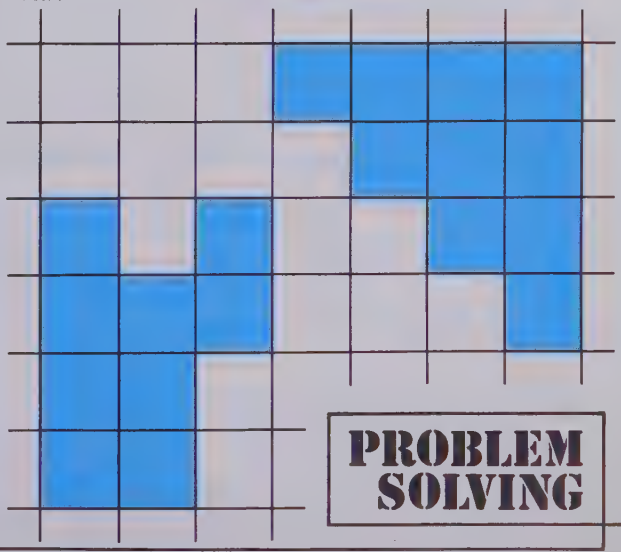


8.



Copy these shapes on centimetre grid paper.

1. What is the perimeter of each shape?
2. On your centimetre grid paper, draw other shapes that have the same perimeter as these shapes.
3. Make up a problem about perimeter to give to a friend.

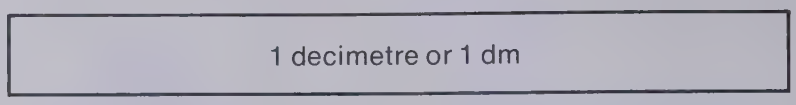


PROBLEM SOLVING

Measuring Length in Decimetres

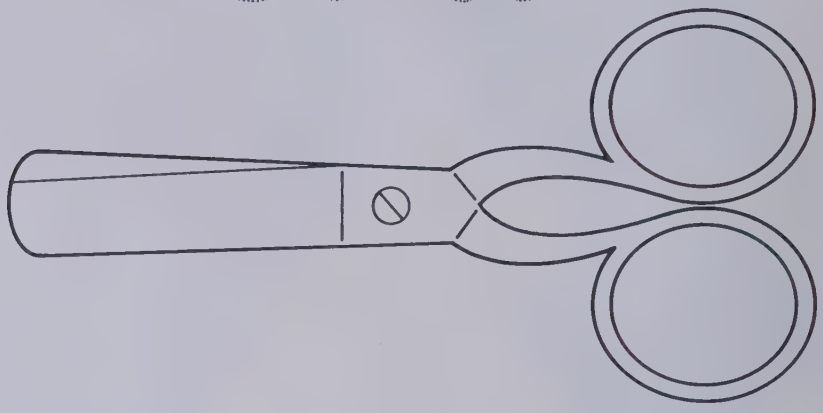
The **decimetre** is a standard unit of length.

This strip is 1 dm long.



The symbol, dm, stands for "decimetres".

These scissors are about 1 dm long.



Working Together

Use a decimetre strip. Tell if each of these is longer than or shorter than 1 dm.

1. a new piece of chalk

2. a chalkboard eraser

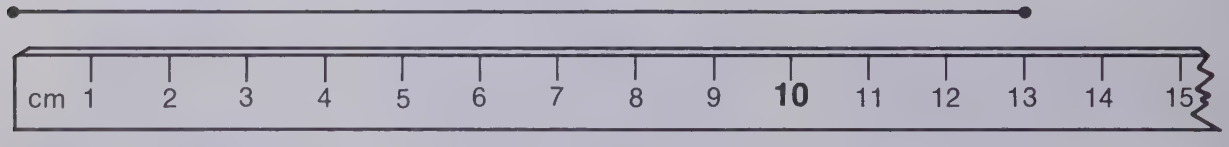
3. your foot

4. your longest finger

Complete the table. Estimate first, then measure each to the nearest decimetre.

		Estimate	Measurement
5.	the length of this page	▒ dm	about ▒ dm
6.	the width of this page	▒ dm	about ▒ dm

For this line segment, complete the statement below.



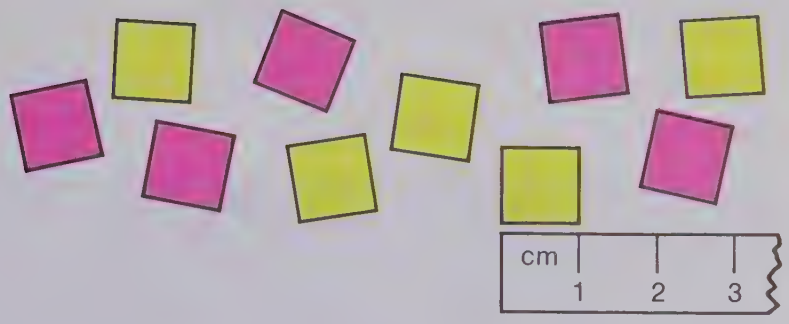
7. The line segment is ▒ cm long, or 1 dm and ▒ cm.

Complete.

8. 2 dm and 1 cm = ▒ cm

9. 35 cm = ▒ dm and ▒ cm

The sides of these small squares are 1 cm long.



Paste 10 of the squares end to end along the decimetre strip. They will fit exactly.

A length of 10 cm is the same as a length of 1 dm.

10 cm = 1 dm

Exercises

Look around. What do you see that is

1. about 1 dm in length?
2. between 1 dm and 5 dm in length?
3. between 5 dm and 10 dm in length?

Copy and complete this table.

4.

dm	1	2	?	7
cm	10	?	40	?

Copy and complete this table. Estimate first. Then measure to the nearest decimetre.

		Estimate	Measurement
5.	the length of your desk	▒ dm	about ▒ dm
6.	the width of your desk	▒ dm	about ▒ dm
7.	the height of your desk	▒ dm	about ▒ dm
8.	the length of your arm from shoulder to finger tips	▒ dm	about ▒ dm
9.	the length of your leg from knee to heel	▒ dm	about ▒ dm

Complete.

10. 20 cm = ▒ dm
11. 24 cm = ▒ dm and ▒ cm
12. 39 cm = ▒ dm and ▒ cm
13. 5 dm = ▒ cm
14. 5 dm and 3 cm = ▒ cm
15. 7 dm and 6 cm = ▒ cm

Measuring Length in Metres

The **metre** is a standard unit of length.

The picture shows different ways to remember how long a metre is.

Working Together

In the picture,

1. what has a measurement of about 1 m?

Look around. What can you see that is

2. about 1 m in length?

Which is the better unit, the metre or the centimetre, for measuring each of these?

3. a hair from your head
4. a flagpole

Use a metre stick. Measure to the nearest metre.

5. the length of the chalkboard

Estimate first. Then measure to the nearest metre.

6. the distance from one corner of your classroom to another corner

Exercises

Estimate the lengths in metres. Then measure each length to the nearest metre. Write your estimates and measurements in a table like this one.

Object	Estimate	Measurement
	▒▒ m	about ▒▒ m

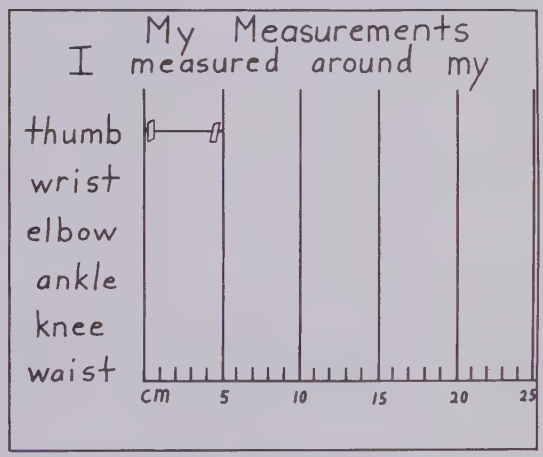
The symbol, m, stands for "metres".

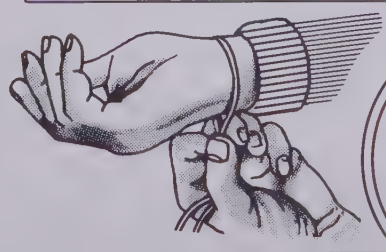
1. the width of the door
2. the height of the door
3. the length of a bookshelf
4. the length of the bulletin board
5. the width of the hallway
6. the length of the hallway
7. the length of the classroom
8. the width of the classroom

Use some of your answers above to help you find these.
Do not measure again.

9. the perimeter of the door
10. the perimeter of the classroom

Make a string graph.

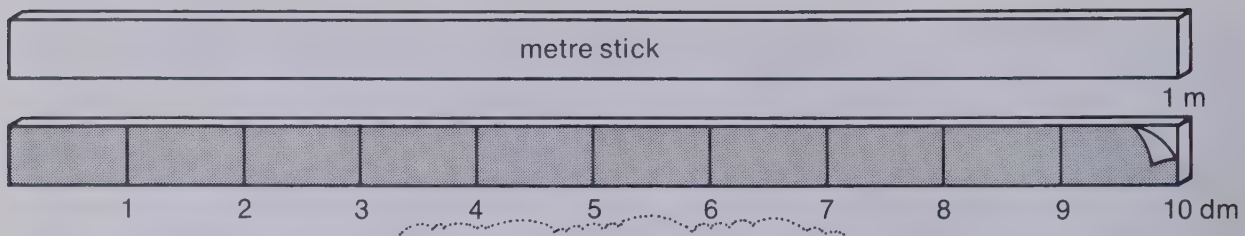




try this

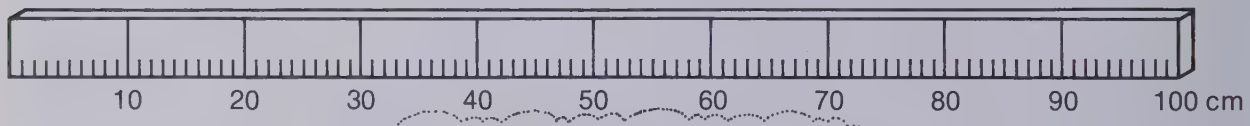
Metres, Decimetres, and Centimetres

10 decimetre strips can be pasted end to end along a metre stick.



A length of 10 dm is the same as a length of 1 m.

There are 10 centimetres for each of the 10 decimetres.



A length of 100 cm is the same as a length of 1 m.

Working Together

Complete the table.

1.

metres	1	?	3
centimetres	100	200	?

Name the greater length.

2. 3 m or 210 cm

3. 2 m or 21 dm

Complete.

4. 1 m and 50 cm = ▒ cm

5. 206 cm = ▒ m and ▒ cm

Exercises

Use cm, dm, or m to best complete each sentence.

1. The shoelace is 40 ? long.

2. The swimming pool is 4 ? deep.

3. The soup can is 1 ? tall.

Complete.

4. 109 cm = 1 m and ▒ cm

5. 259 cm = ▒ m and ▒ cm

6. 3 m and 24 cm = ▒ cm

7. 2 m and 8 cm = ▒ cm

Name the greater length.

8. 2 m or 240 cm

9. 12 dm or 2 m

Practice

Sonya is 129 cm tall. How tall is Sonya in metres and centimetres?

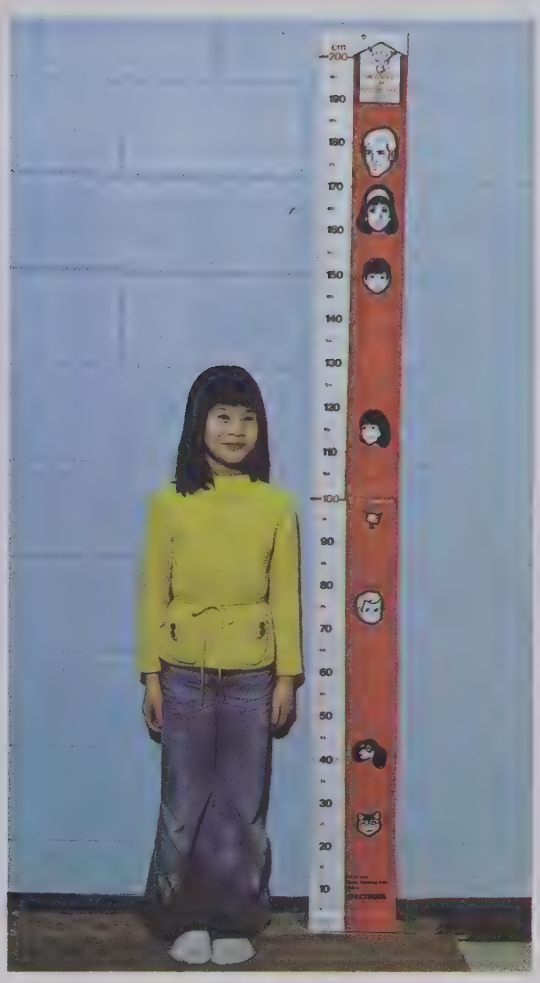
Subtract 100 cm for each metre of height.

Subtract $\begin{array}{r} 129 \\ -\,100 \\ \hline 29 \end{array}$

129 cm
100 cm = 1 m
29 cm left

129 cm = 1 m and 29 cm

Sonya is 1 m and 29 cm tall.



Exercises

Measure how tall you are and complete.

1. I am ▒ cm tall.

2. I am ▒ m and ▒ cm tall.

How much will you have to grow to be

3. 160 cm tall?

4. 1 m and 75 cm tall?

Are the two lengths equal?
If not, tell which is greater.

5. 1 m or 85 cm

6. 2 m or 225 cm

7. 1 m or 13 dm

8. 3 m or 30 dm

9. 7 dm or 63 cm

10. 4 dm or 40 cm

Complete.

11. 1 m and 15 cm = ▒ cm

12. 2 m and 83 cm = ▒ cm

13. 320 cm = ▒ m and ▒ cm

14. 157 cm = ▒ m and ▒ cm

15. 3 dm and 4 cm = ▒ cm

16. 59 cm = ▒ dm and ▒ cm

17. 1 m and 7 dm = ▒ dm

18. 22 dm = ▒ m and ▒ dm

Solve.

19. Sammy Snail crawls 45 cm. He stops to rest. Then he crawls 32 cm. How many centimetres did he crawl?

20. The path is 1 m wide. Sammy Snail crawls 67 cm. How much farther must he crawl to cross the path?

Measuring Capacity in Litres

The **litre** is a standard unit for measuring liquids.

The symbol, L, stands for "litres".

The green pail holds about 1 L of water.

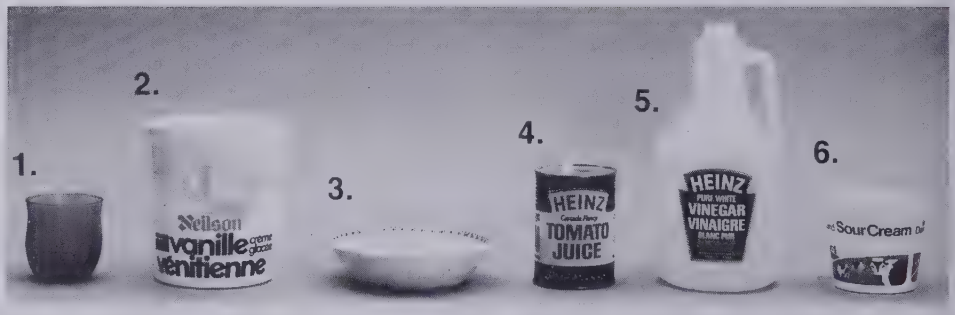
The red pail holds about 10 L.

The bathtub half full holds about 100 L.

Working Together

Which do you think holds less than 1 L?

Which do you think holds more than 1 L?



Which do you think holds less than 10 L? more than 10 L?

7. a gasoline truck **8.** a milk jug **9.** a swimming pool

10. the kitchen sink **11.** an ice cube tray **12.** a washing machine

Which of the above do you think holds

13. more than 100 L? **14.** more than 800 L?

Exercises

1 L of water will fill the coffee can.

How much do you think is needed to fill each of the containers?

1. coffee can
2. pot
3. teakettle
4. mug
5. fishbowl
6. roast pan
7. pitcher

1 L
2 L
3 L
4 L
5 L
15 L
less than 1 L

Copy and complete the table. First, estimate the number of litres needed to fill each container. Then measure each to the nearest litre.

		Estimate	Measurement
8.	vase	▒▒ L	about ▒▒ L
9.	sand pail	▒▒ L	about ▒▒ L
10.	paint can	▒▒ L	about ▒▒ L
11.	large juice can	▒▒ L	about ▒▒ L
12.	soft drink bottle	▒▒ L	about ▒▒ L
13.	large mixing bowl	▒▒ L	about ▒▒ L

Find an unmarked container that holds more than 1 L.

14. Pour water into the container until you think you have 1 L. Check your estimate by pouring the water into a 1 L container.

Use a large milk carton that is 1 dm long and 1 dm wide. Pour 1 L of water into the carton. Make a mark to show the water level.

15. Measure how high the water reaches.

Pour another litre of water into the carton and mark the new water level.

16. Measure how high the water reaches.

Measuring Mass in Kilograms

The **kilogram** is a standard unit for measuring **mass.**

The symbol, kg, stands for "kilograms".

You know how heavy something is when you know its mass.

A large cheese wheel has a mass of 100 kg.

Suzie is sitting beside 10 kg of cheese.

Marc is holding 1 kg of cheese.

Working Together

Without measuring mass, how can you tell

1. which of two objects is heavier?

Look around. What do you see with a mass that is

2. less than 1 kg?

3. about 1 kg?

4. about 10 kg?

5. more than 10 kg?

Which is the best estimate for the mass of

6. a Thanksgiving turkey?

1 kg, 10 kg, or 100 kg

7. a Halloween jack-o'-lantern?

6 kg, 60 kg, or 600 kg

Exercises

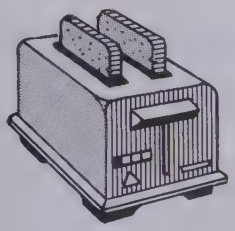
Do you know your own mass?

1. Estimate it in kilograms.

2. Use scales. Measure your mass to the nearest kilogram.

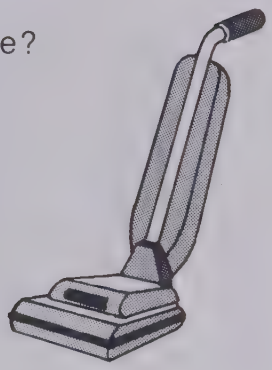
Which is the best estimate for the mass of each of these?

3.



1 kg, 10 kg, or 100 kg

4.



1 kg, 10 kg, or 100 kg

5.

1 kg, 10 kg, or 100 kg

Copy and complete the table. First, estimate each mass in kilograms. Then measure each to the nearest kilogram.

		Estimate	Measurement
6.	telephone book	▒▒ kg	about ▒▒ kg
7.	brick	▒▒ kg	about ▒▒ kg
8.	a bag of sand	▒▒ kg	about ▒▒ kg
9.	a bag of marbles	▒▒ kg	about ▒▒ kg
10.	a large can of tomato juice	▒▒ kg	about ▒▒ kg
11.	10 thick books	▒▒ kg	about ▒▒ kg
12.	2 L of milk	▒▒ kg	about ▒▒ kg

Add or subtract.

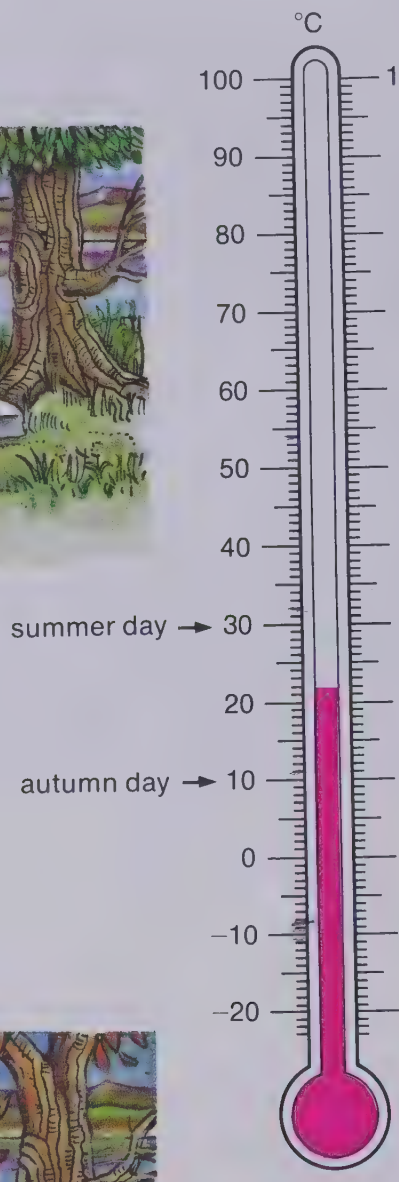
1.	7 +4	**2.**	11 − 8	**3.**	3 +9	**4.**	12 − 5	**5.**	7 +8	**6.**	15 − 6	**7.**	9 +5	
8.	14 − 8	**9.**	6 +4	**10.**	10 − 3	**11.**	7 +6	**12.**	13 − 8	**13.**	5 +4	**14.**	9 − 3	
15.	6 +6	**16.**	12 − 7	**17.**	5 +8	**18.**	13 − 4	**19.**	9 +6	**20.**	15 − 8			

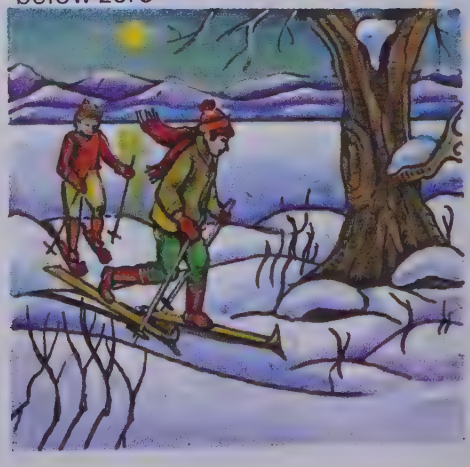
KEEPING SHARP

Measuring Temperature in Degrees Celsius

The **degree Celsius** is a standard unit of temperature.

The symbol, °C, stands for "degrees Celsius".





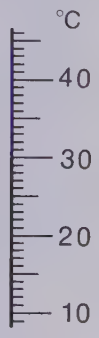
Working Together

Does the liquid in a thermometer move up or move down

1. as the weather becomes warmer?
2. as the weather becomes cooler?

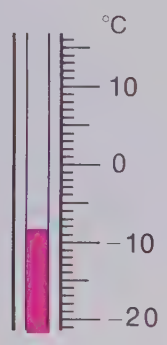
Tell how many degrees there are

3. from one numeral to the next.
4. halfway from one numeral to the next.
5. from one mark to the next.



Give each temperature.

6.

7. 

Exercises

Choose the best temperature for each of these.

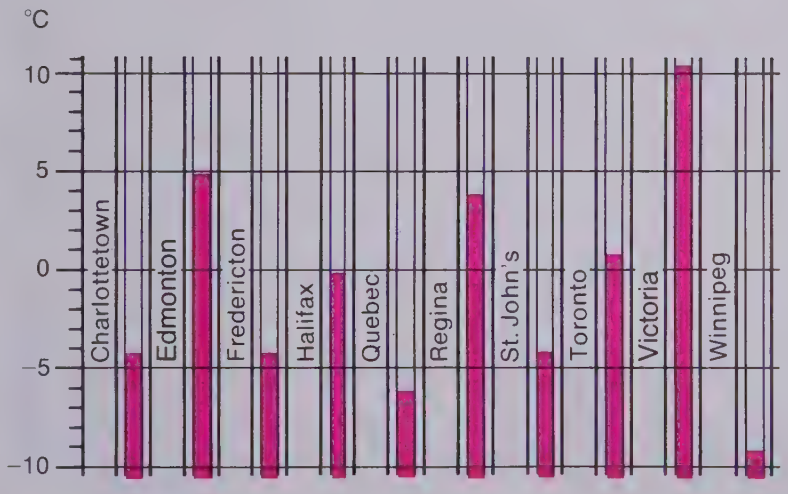
1. water boiling in a kettle
2. a cup of hot chocolate
3. outdoor skating
4. outdoor swimming
5. raking leaves
6. cold milk

−10°C	4°C
10°C	27°C
70°C	100°C

Draw and mark a thermometer to show each temperature.

7. −12°C **8.** 7°C **9.** 32°C **10.** 54°C

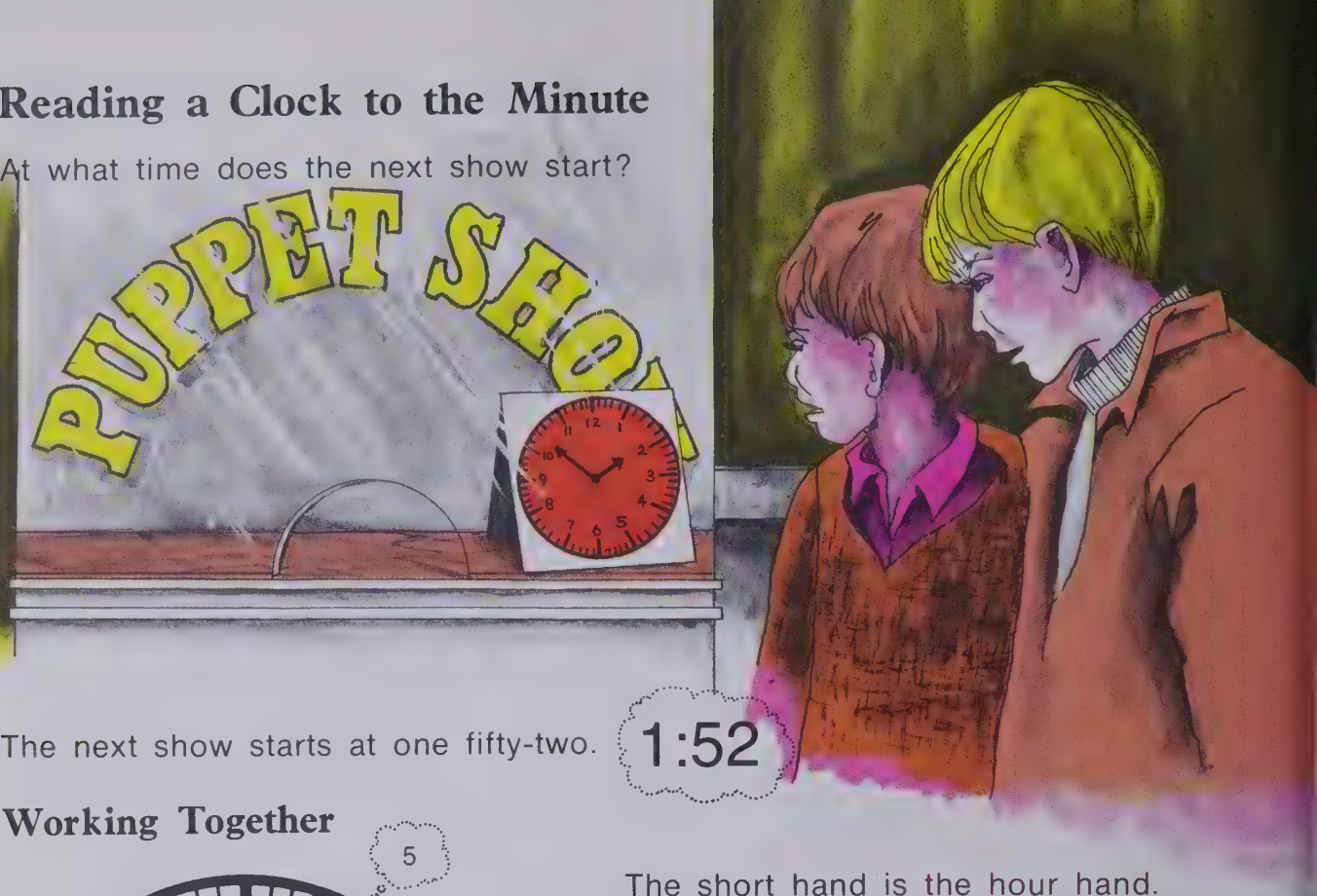
One day in February, thermometers looked like this across Canada.



11. Which city was coldest?
12. Which cities had equal temperatures?
13. How many degrees warmer was Victoria than Edmonton?
14. Were more of the temperatures above zero or below zero?

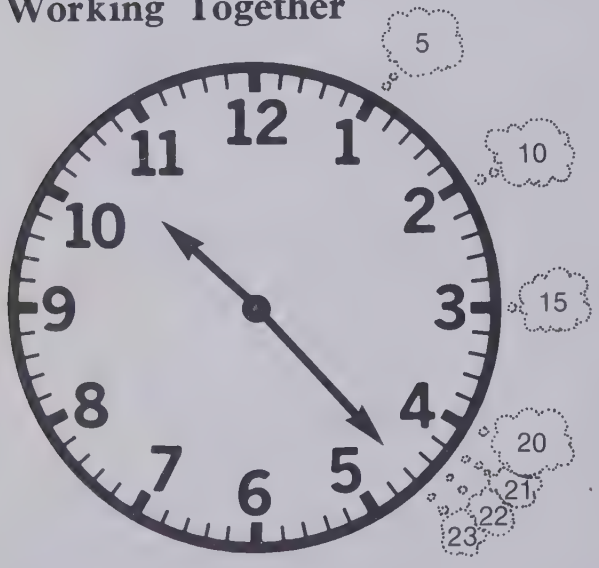
Reading a Clock to the Minute

At what time does the next show start?



The next show starts at one fifty-two. 1:52

Working Together

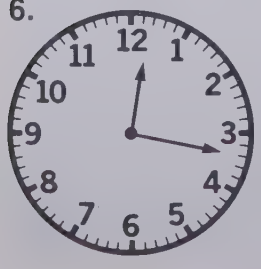


The short hand is the hour hand.
The long hand is the minute hand.

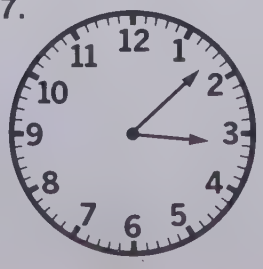
1. Look at the hour hand. What hour has it just passed?
2. Count by fives and then by ones to read the minute hand. How many minutes does it show?
3. What time does the clock show?
4. Write the time using numerals.
5. Write the time using words.

What time is it?

6.



7.



Show each time on a dial clock and write the time using words.

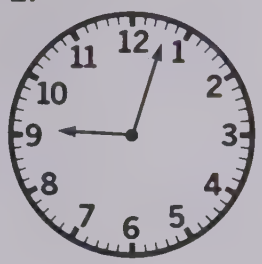
8.

9.

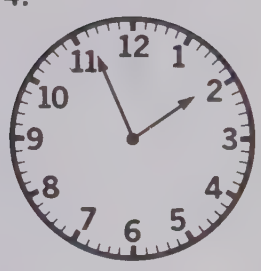
Exercises

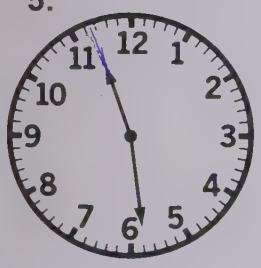
Write the time using numerals.

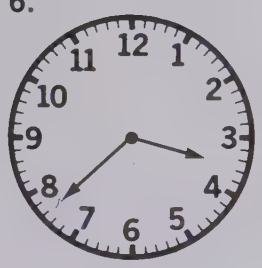
1.

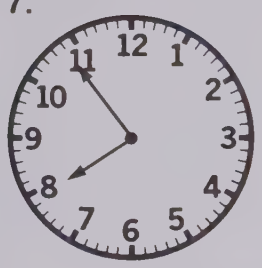
2. 

3.

4. 

5. 

6. 

7. 

8.

Write the time using words.

9.

10.

11.

12.

Draw dial clocks, that show these times.

13.

14.

15.

16.

Some dial clocks do not show numerals.
What time is shown?

17.

18.

19.

20.

Does the Answer Make Sense?

If your answer does not make sense, there may be a mistake in your work.

Example: In a problem, the question asked was, "How tall is Steve's older brother?"

Abby's answer was 2 m.
Bill's answer was 20 m.

Bill's answer is probably wrong, because a person 20 m tall would be taller than a house!

Which answer is probably wrong? Tell why.

The question asked was	The answers were	
1. How many marbles were in her pocket?	A: 53 marbles	B: 530 marbles
2. How wide is the room?	A: 10 cm	B: 10 m
3. How many cookies did each child eat?	A: 30 cookies	B: 3 cookies
4. How heavy is the baby?	A: 40 kg	B: 4 kg
5. What was the temperature outside?	A: 20°C	B: 68°C
6. How many children are there in both classes?	A: 5 children	B: 50 children
7. How much milk did Minnie buy at the store?	A: 3 L	B: 30 L
8. How much did the toy airplane cost?	A: $25	B: 25¢
9. What is the date of Eva's birthday?	A: February 30	B: March 2

PROBLEM SOLVING

Checking Up

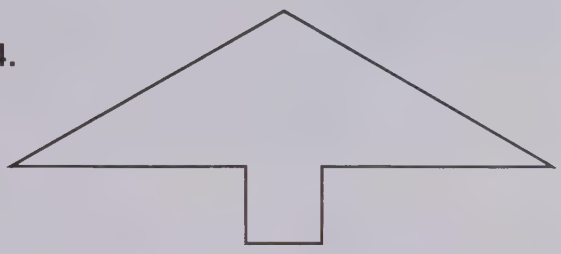
Use a centimetre ruler. Measure each line segment to the nearest centimetre.

1.

2.

Use a centimetre ruler. Measure the sides and find the perimeter of each shape.

3.

4. 

Which is the better unit, the centimetre or the metre, for measuring each of these?

5. the height of a tree

6. the length of a belt

7. the width of a refrigerator

8. the length of a garden hose

Complete.

9. 1 m = ▒ cm

10. 4 dm = ▒ cm

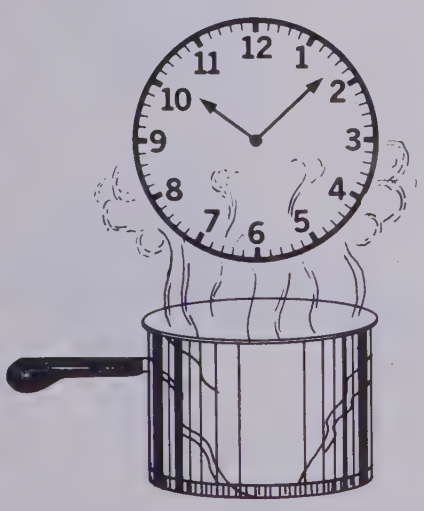
11. 87 cm = ▒ dm and ▒ cm

12. 2 m and 35 cm = ▒ cm

13. 142 cm = ▒ m and ▒ cm

14. 3 m and 2 cm = ▒ cm

Choose the best estimate for each measurement.



15. the mass of the cooking pot
5 kg, 50 kg, or 500 kg

16. the amount of hot soup in the pot
8 L, 80 L, or 800 L

17. the temperature of the hot soup
8°C, 48°C, or 88°C

18. the height of the cooking pot
2 cm, 20 cm, or 200 cm

Write

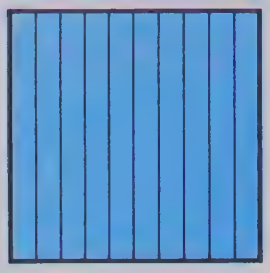
19. the time shown on the dial clock.

Draw

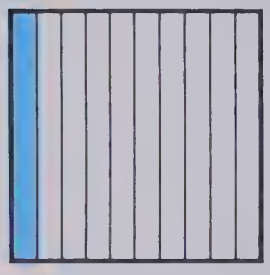
20. a dial clock that shows 3:42.

7 DECIMALS

Using Decimals to Show Tenths

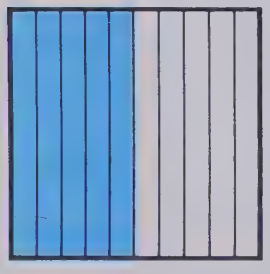


1 whole with 10 equal parts is written 1



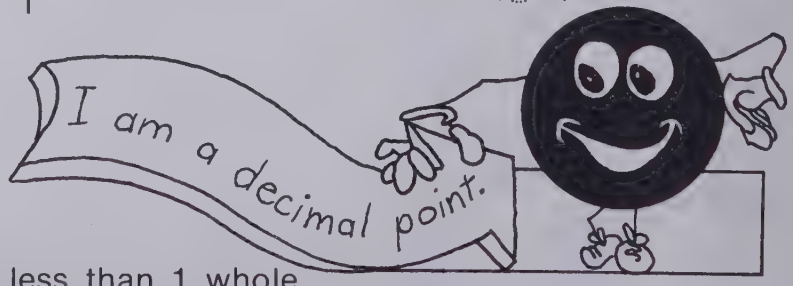
1 part of a whole with 10 equal parts is written $\frac{1}{10}$ or .1

one-tenth



5 parts of a whole with 10 equal parts is written $\frac{5}{10}$ or .5

five-tenths



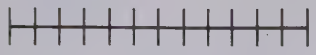
.1 and .5 are **decimals.**

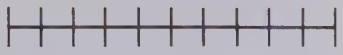
The . is a **decimal point.**

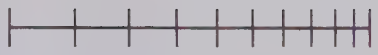
A decimal names an amount less than 1 whole.
A decimal names the amount in tenths.

Working Together

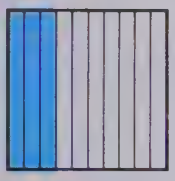
Which of these are divided into 10 equal parts?

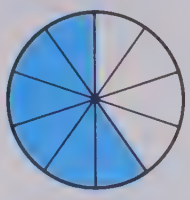
1. 

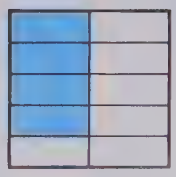
2. 

3. 

There are 10 equal parts in each shape.
Give the decimal that shows how much is shaded.

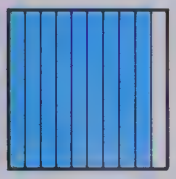
4. 

5. 

6. 

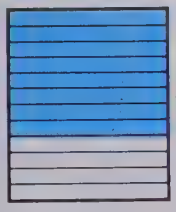
Exercises

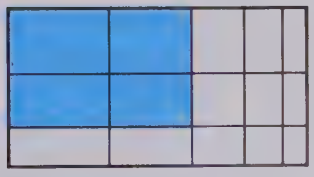
For each picture that shows 10 equal parts,
write a decimal to show how much is shaded.

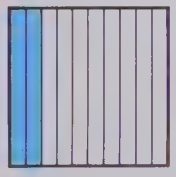
1. 

2.

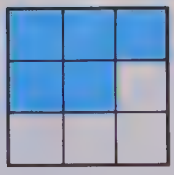
3.

4. 

5. 

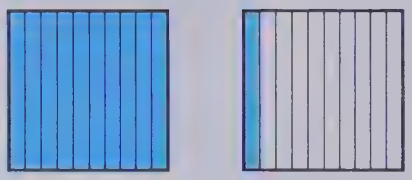
6. 

7.

8. 

9.

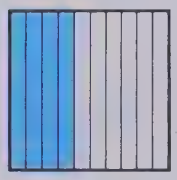
Using Decimals to Show Wholes and Tenths



1 whole and
1 of 10 equal parts of
another whole is written $1\frac{1}{10}$ or 1.1

one and one-tenth

Use the word *and* for the decimal point.



0 wholes and
4 of 10 equal parts
is written $\frac{4}{10}$ or 0.4

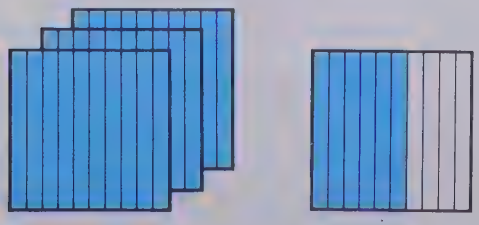
four-tenths
or
zero and four-tenths

A decimal shows how many wholes
and how many tenths of another whole.

Working Together

How many whole ones? How many tenths?
Give the decimal that shows how much is shaded.

1.



2.

Exercises

Write a decimal to show how much is shaded.

1.

2.

3.

4.

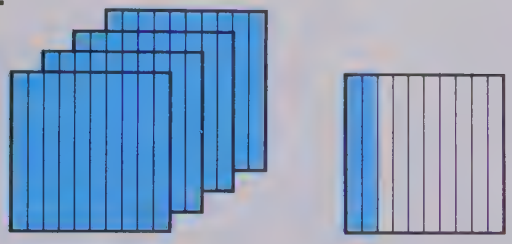
5.

6.

7.

8.

9.

10. 

11.

Copy and complete this table.

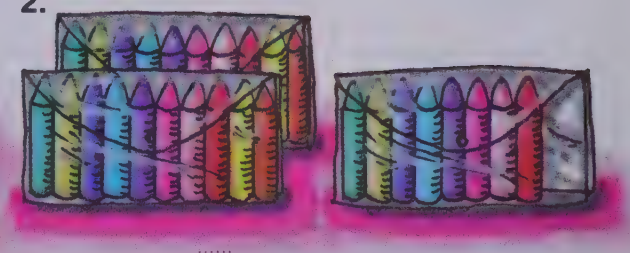
	Words	Fraction	Decimal
12.	two and seven-tenths	$2\frac{7}{10}$	2.7
13.	six and two-tenths	?	?
14.	?	$3\frac{6}{10}$	?
15.	?	?	0.5
16.	?	?	5.3
17.	?	$\frac{1}{10}$	?
18.	nine-tenths	?	?
19.	?	$4\frac{4}{10}$	?
20.	?	?	9.8

Practice

There are 10 pens to a package.
Write a decimal to show how many packages.

1.

packages

2. 

packages

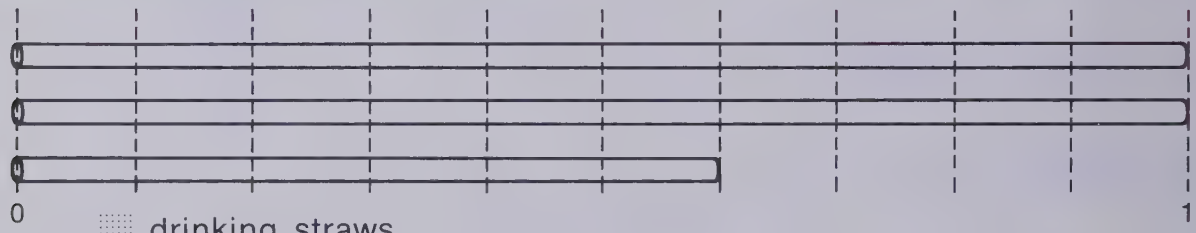
3.

packages

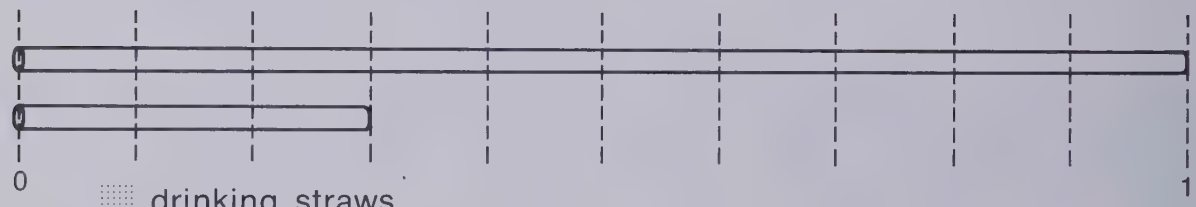
4.

packages

Write a decimal to show how many drinking straws.

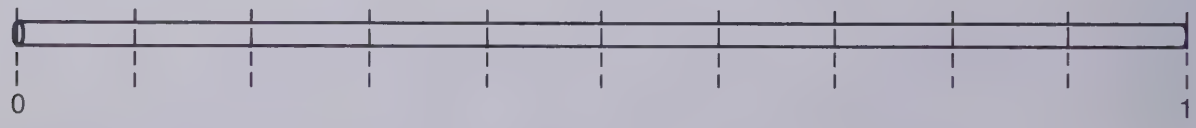
5. 

drinking straws

6. 

drinking straws

Use tracing paper on this drinking straw.

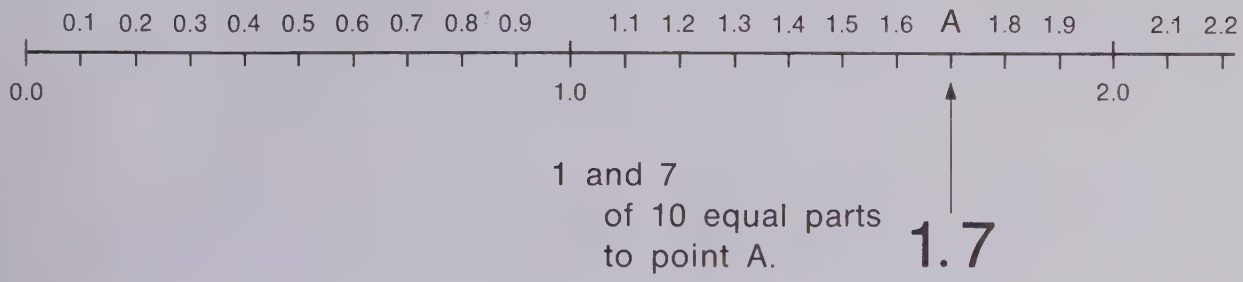


Draw

7. 2.4 drinking straws.
8. 3.7 drinking straws.
9. 1.6 drinking straws.
10. three and two-tenths drinking straws.
11. five-tenths of a drinking straw.

Decimals and Number Lines

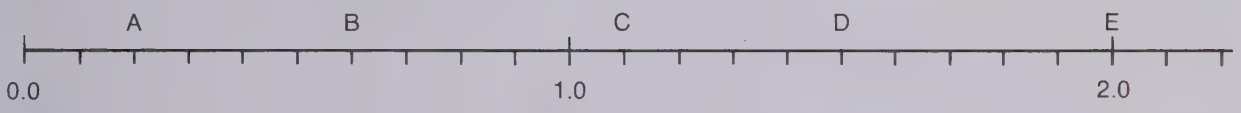
Decimals name points on number lines.



1 and 7 of 10 equal parts to point A. **1.7**

Working Together

For this number line,

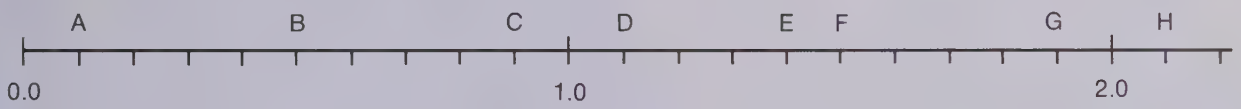


1. what point matches 0.6?

2. what decimal names point D?

Exercises

For this number line,



what point matches

1. 0.1? **2.** 0.9? **3.** 1.1?

4. one and five-tenths?

What is the decimal name for

5. point G? **6.** point E?

7. point H? **8.** point B?

For this number line,

copy and complete the chart.

9.

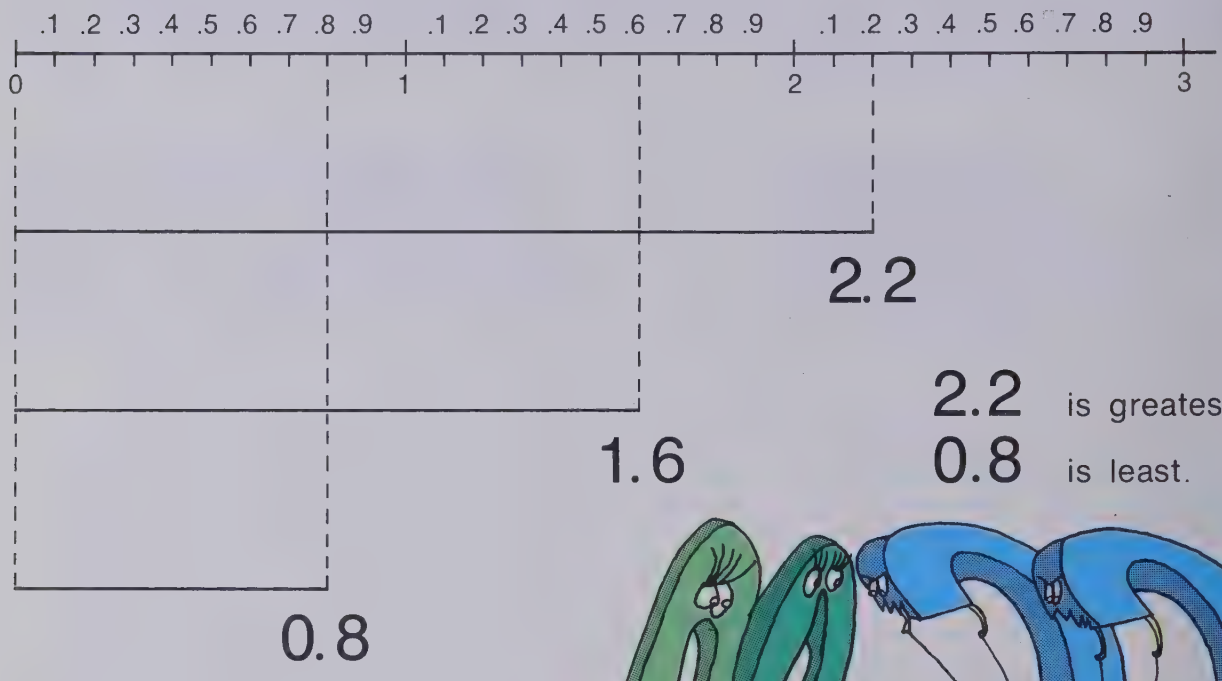
Point	?	I	?	E	?	O	?	K
Decimal	1.3	?	0.2	?	2.2	?	1.7	?

Comparing and Ordering Decimals

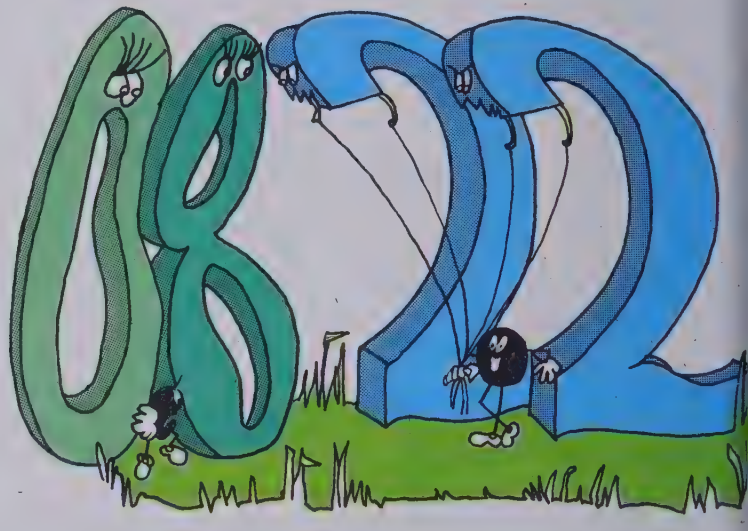
A number line can be used to compare and order decimals.

Which of these numbers is greatest? Which is least?

0.8
2.2
1.6



2.2 is greatest.
0.8 is least.



Working Together

Which is greater,

1. 0.2 or 0.4? **2.** 1.2 or 0.8?

Which is less,

3. 1.6 or 1.3? **4.** 1.9 or 2.1?

Show these numbers in order, from least to greatest.

5. 0.3, 2.1, 1.2, 1.1, 2.2

Complete each pattern.

6. 0.0, 0.1, 0.2, 0.3, ▒, ▒, 0.6, ▒, ▒, 0.9

7. 0.8, ▒, 1.0, ▒, 1.2, ▒, 1.4, ▒, 1.6, ▒

Exercises

Which is greater,

1. 0.3 or 0.5? **2.** 0.6 or 0.4? **3.** 8.1 or 7.9? **4.** 2.0 or 1.9?

5. four and two-tenths *or* three and nine-tenths?

6. five-tenths *or* one and four-tenths?

Which is less,

7. 1.0 or 0.9? **8.** 3.9 or 4.1? **9.** 0.4 or 4.0? **10.** 2.1 or 1.8?

11. two and nine-tenths *or* three and two-tenths?

12. one and six-tenths *or* two?

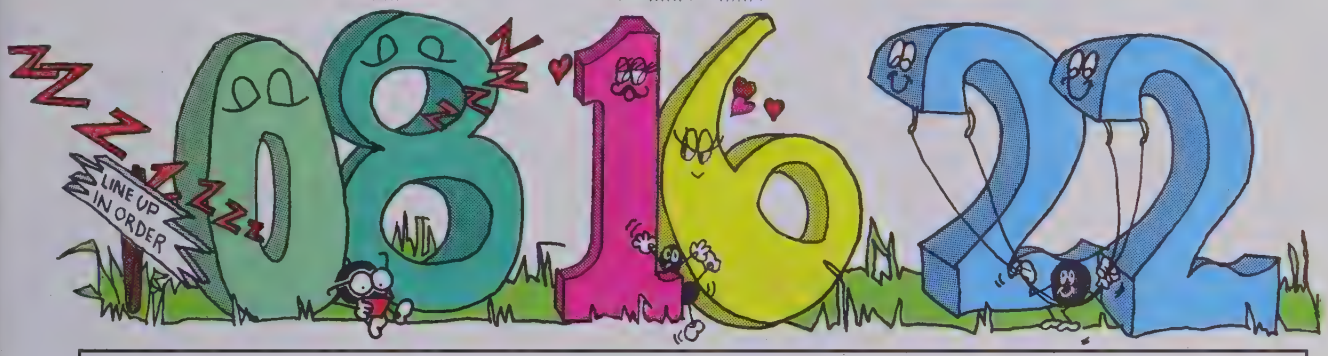
List these numbers in order, from least to greatest.

13. 1.9, 2.0, 1.8, 2.3, 1.5 **14.** 2.2, 4.0, 3.4, 4.3, 0.4

Complete each pattern.

15. 1.6, 1.7, 1.8, ▒, ▒, ▒, 2.2, ▒, ▒, 2.5

16. ▒, ▒, ▒, ▒, 1.2, 1.3, 1.4, ▒, ▒, 1.7



Complete each addition chain.

1. 0 → ▒ → ▒ → ▒ → ▒ → ▒ → 18
(+3 +3 +3 +3 +3 +3)

2. 0 → ▒ → ▒ → ▒ → ▒ → ▒
(+4 +4 +4 +4 +4)

3. 0 → ▒ → ▒ → ▒ → ▒ → ▒
(+5 +5 +5 +5 +5)

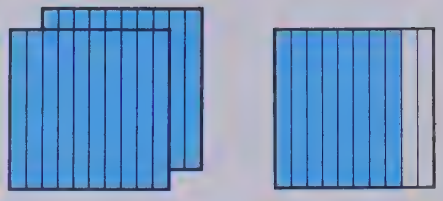
KEEPING SHARP

Decimals and Place Value

This picture shows

ones	tenths
2	8

two and eight-tenths
or
2.8



The picture also shows

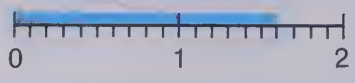
ones	tenths
	28

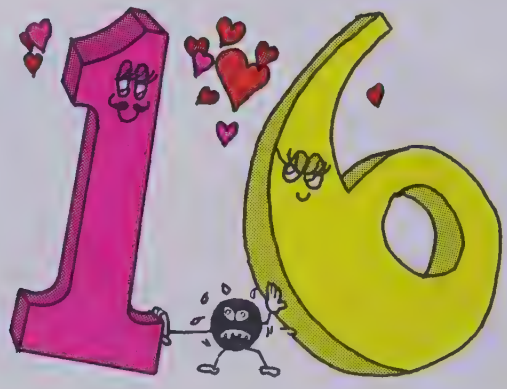
28 tenths

This picture shows

ones	tenths
	16

16 tenths





The picture also shows

ones	tenths
1	6

one and six-tenths
or
1.6

The decimal point always goes between the ones place and the tenths place.

Working Together

Show each of these as a decimal.

	ones	tenths
1.	3	6

	ones	tenths
2.		25

Copy and complete the place-value chart for each of these.

3. 2.7

4. three

5. 68 tenths

ones	tenths
?	?
?	?
?	?

Exercises

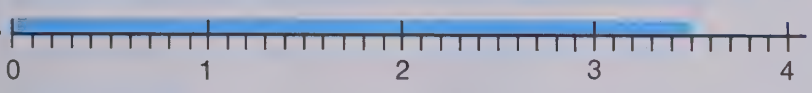
Write the missing entry for each row of this table.

	ones	tenths	Words	Decimal
1.	2	5	two and five-tenths	2.5
2.	5	8	?	5.8
3.		2	two-tenths	?
4.		45	four and five-tenths	?
5.		32	?	3.2
6.	?	?	eight	8.0

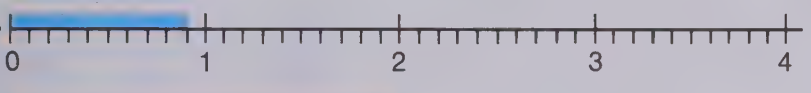
Complete a place-value chart for each amount shown on these number lines.

ones	tenths

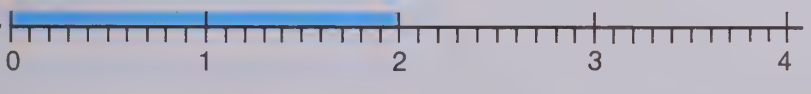
7.



8.



9.



Each pizza was cut into 10 pieces. Each piece was one-tenth of a pizza. Answer each question with a decimal.

10. 37 pieces of pizza were sold. How many pizzas were sold?

37 pieces are 37 tenths.

11. 13 pieces were not sold. How many pizzas were not sold?

***12.** How many pizzas were there in all?

***13.** Shelly bought 7 pieces, Wilma bought 6, and Charlie bought 9. How many pizzas did they buy in all?

Add.

1. 61 + 32	**2.** 115 + 460	
3. 439 + 57	**4.** 326 + 349	
5. 76 + 31	**6.** 250 + 67	
7. 54 + 88	**8.** 472 + 58	
9. 276 + 225	**10.** 486 + 257	
11. 347 + 157	**12.** 426 + 374	

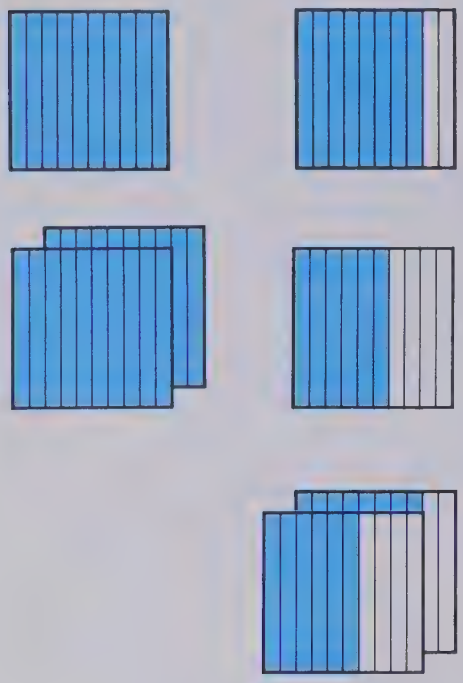
Subtract.

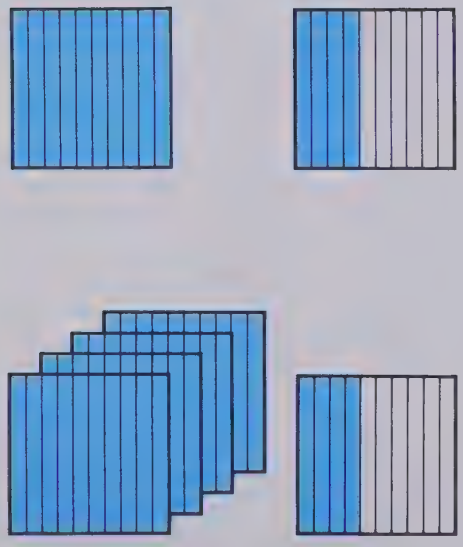
13. 86 − 50	**14.** 453 − 23	
15. 71 − 17	**16.** 382 − 235	
17. 148 − 61	**18.** 567 − 182	
19. 320 − 23	**20.** 752 − 598	
21. 402 − 26		
22. 600 − 388		

KEEPING SHARP

Adding Decimals

Add 1.8 and 2.6.





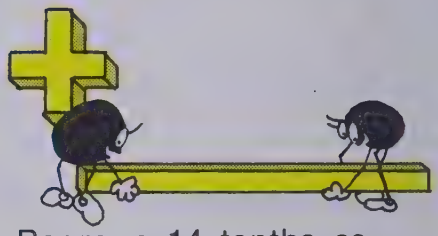
The sum of 1.8 and 2.6 is 4.4.

$$\begin{array}{r} \text{ones}\ \ \text{tenths} \\ 1.8 \\ +\ 2.6 \\ \hline \end{array}$$

Show 1.8 and 2.6 with their ones and tenths lined up in vertical form.

$$\begin{array}{r} 1.8 \\ +\ 2.6 \\ \hline \vdots 4 \end{array}$$

Add the tenths.



$$\begin{array}{r} {\scriptstyle 1} \\ 1.8 \\ +\ 2.6 \\ \hline 4 \end{array}$$

Regroup 14 tenths as 1 one and 4 tenths. Show the 1 one lined up with the other ones.

$$\begin{array}{r} {\scriptstyle 1} \\ 1.8 \\ +\ 2.6 \\ \hline 4.4 \end{array}$$

Add the ones and place the decimal point.

Working Together

Line up the ones and tenths in vertical form.

1. $3.5 + 4.6$ **2.** $2.7 + 5.0$ **3.** $0.8 + 4.2$

Follow the steps.

4.

$$\begin{array}{r} 6.0 \\ +\ 2.3 \\ \hline \end{array}$$

Add tenths.
Add ones.

5.

$$\begin{array}{r} 5.6 \\ +\ 2.8 \\ \hline \end{array}$$

Add tenths and regroup.
Add ones.

Add.

6. $2.6 + 3.3$ **7.** $4.3 + 2.7$

8. $\begin{array}{r} 8.0 \\ +\ 0.8 \\ \hline \end{array}$ **9.** $\begin{array}{r} 0.4 \\ +\ 7.9 \\ \hline \end{array}$

Exercises

Use the sums in the box to help you write these sums.

1. $\begin{array}{r} 9.1 \\ +\ 0.7 \\ \hline \end{array}$ **2.** $\begin{array}{r} 3.9 \\ +\ 2.3 \\ \hline \end{array}$ **3.** $\begin{array}{r} 2.0 \\ +\ 1.5 \\ \hline \end{array}$

4. $\begin{array}{r} 3.7 \\ +\ 0.6 \\ \hline \end{array}$ **5.** $\begin{array}{r} 1.6 \\ +\ 1.4 \\ \hline \end{array}$ **6.** $\begin{array}{r} 5.4 \\ +\ 1.0 \\ \hline \end{array}$

7. $\begin{array}{r} 3.7 \\ +\ 1.5 \\ \hline \end{array}$ **8.** $\begin{array}{r} 6.1 \\ +\ 2.5 \\ \hline \end{array}$ **9.** $\begin{array}{r} 5.9 \\ +\ 3.6 \\ \hline \end{array}$

$\begin{array}{r} 91 \\ +\ 7 \\ \hline 98 \end{array}$	$\begin{array}{r} 39 \\ +\ 23 \\ \hline 62 \end{array}$	$\begin{array}{r} 20 \\ +\ 15 \\ \hline 35 \end{array}$
$\begin{array}{r} 37 \\ +\ 6 \\ \hline 43 \end{array}$	$\begin{array}{r} 16 \\ +\ 14 \\ \hline 30 \end{array}$	$\begin{array}{r} 54 \\ +\ 10 \\ \hline 64 \end{array}$
$\begin{array}{r} 37 \\ +\ 15 \\ \hline 52 \end{array}$	$\begin{array}{r} 61 \\ +\ 25 \\ \hline 86 \end{array}$	$\begin{array}{r} 59 \\ +\ 36 \\ \hline 95 \end{array}$

Add.

10. $1.4 + 3.3$ **11.** $2.1 + 6.4$ **12.** $2.3 + 2.9$ **13.** $3.7 + 5.8$

14. $1.1 + 0.9$ **15.** $0.6 + 2.0$ **16.** $4.3 + 4.3$ **17.** $3.5 + 3.8$

18. $\begin{array}{r} 0.7 \\ +\ 6.1 \\ \hline \end{array}$ **19.** $\begin{array}{r} 6.9 \\ +\ 1.7 \\ \hline \end{array}$ **20.** $\begin{array}{r} 2.5 \\ +\ 4.0 \\ \hline \end{array}$ **21.** $\begin{array}{r} 4.7 \\ +\ 1.7 \\ \hline \end{array}$ **22.** $\begin{array}{r} 2.7 \\ +\ 0.3 \\ \hline \end{array}$

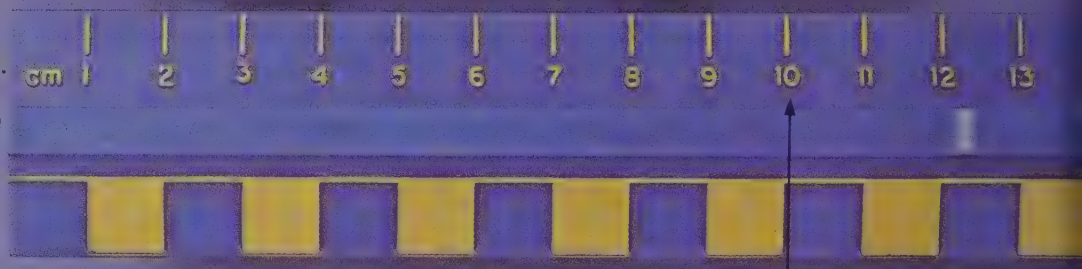
23. $\begin{array}{r} 5.8 \\ +\ 3.5 \\ \hline \end{array}$ **24.** $\begin{array}{r} 1.2 \\ +\ 6.5 \\ \hline \end{array}$ **25.** $\begin{array}{r} 4.7 \\ +\ 4.9 \\ \hline \end{array}$ **26.** $\begin{array}{r} 9.3 \\ +\ 0.2 \\ \hline \end{array}$ **27.** $\begin{array}{r} 4.7 \\ +\ 2.7 \\ \hline \end{array}$

Decimetres, Centimetres, and Decimals

The wrecker is 12 cm long.
What is its length
in decimetres?

12 cm equals
1 dm and 2 cm.

Each centimetre
is one-tenth
of a decimetre.



12 cm is 12-tenths dm or 1 and 2-tenths dm.
12 cm = 1.2 dm

The wrecker is 1.2 dm long.

10 cm
1.0 dm

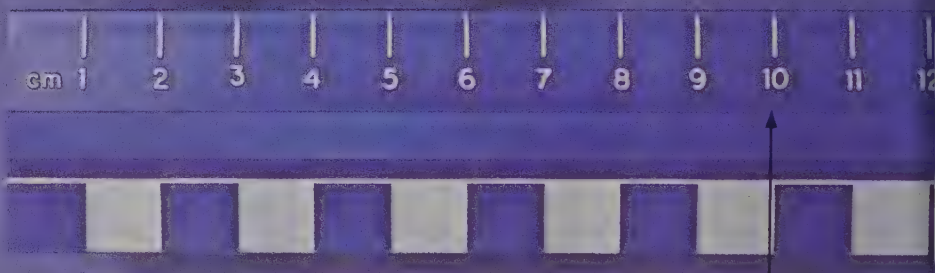
The car is 0.7 dm long.
What is its length
in centimetres?

0.7 dm is
7 of 10 equal parts
of a decimetre.

7 of 10 equal parts
of a decimetre
is 7 cm.

0.7 dm = 7 cm

The car is 7 cm long.



10 cm
1.0 dm

Working Together

Complete the tables.

1.	14 cm	1 dm and 4 cm	1.4 dm
2.	27 cm	? dm and ? cm	? dm
3.	5 cm	? dm and ? cm	? dm

4.	2.6 dm	? dm and ? cm	? cm
5.	0.3 dm	? dm and ? cm	? cm

Give each length in decimetres.

6. 8 cm **7.** 16 cm

Give each length in centimetres.

8. 0.6 dm **9.** 2.0 dm

Exercises

Write each of these measurements in decimetres. Use a ruler to help you.

1. 23 cm **2.** 18 cm **3.** 10 cm
4. 3 cm **5.** 80 cm **6.** 1 cm

Write each of these measurements in centimetres. Use a ruler to help you.

7. 2 dm and 5 cm
8. 3.2 dm **9.** 5.0 dm **10.** 0.8 dm
11. 1.0 dm **12.** 0.1 dm **13.** 1.1 dm

The bus is 1.2 dm long.

The car is 9 cm long.

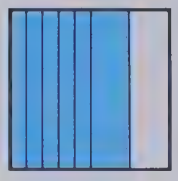
A box is 22 cm long. Is it long enough to hold the bus and car placed end to end?

PROBLEM SOLVING

Checking Up

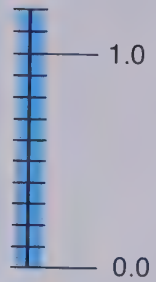
Write *yes* if the number and picture match.
Write *no* if they do not match.

1.



0.6

2.



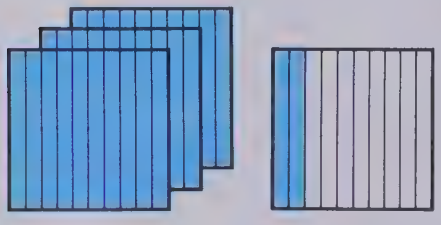
1.2

3.

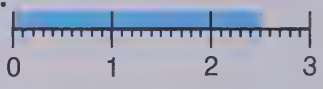
0.1

Write a decimal for each of these.

4.



5.



6. six and two-tenths

7. seven-tenths

ones	tenths
8. 2	3

9. 45 tenths

For this number line,

10. what point matches 1.8?

11. what decimal names point C?

Which is greater,

12. 0.2 or 0.5?

13. 5.2 or 3.9?

Which is less,

14. 2.3 or 0.8?

15. seven-tenths *or* one and one-tenth?

List these numbers in order, from least to greatest.

16. 1.6, 2.8, 0.8, 1.3, 0.6, 2.1

Add.

17. $\begin{array}{r} 2.4 \\ +\,1.5 \\ \hline \end{array}$

18. $\begin{array}{r} 1.8 \\ +\,0.7 \\ \hline \end{array}$

19. $0.5 + 3.2$

20. $1.9 + 2.6$

Add.

1.	23 + 15	**2.**	30 + 42	**3.**	116 + 141	**4.**	48 + 25	
5.	106 + 39	**6.**	114 + 237	**7.**	67 + 51	**8.**	395 + 52	
9.	275 + 274	**10.**	89 + 41	**11.**	252 + 369	**12.**	507 + 195	
13.	$6.45 + 0.65	**14.**	$3.79 + 1.69					

Subtract.

15.	57 − 52	**16.**	146 − 23	**17.**	130 − 110	**18.**	92 − 45	
19.	352 − 146	**20.**	370 − 342	**21.**	608 − 336	**22.**	539 − 367	
23.	725 − 342	**24.**	311 − 263	**25.**	907 − 448	**26.**	541 − 197	
27.	$8.00 − 3.57	**28.**	$3.03 − 1.78					

Copy and complete the chart.

	Two numbers	Their sum	Their difference	The greater number added to itself	The sum added to the difference
29.	34, 23	57	11	Add 34 and 34.	Add 57 and 11.
30.	42, 18	?	?	?	?
31.	185, 67	?	?	?	?
32.	454, 259	?	?	?	?
33.	,	?	?	?	?

Choose any two numbers.

These results should match. If they do not match, there is a mistake in your work.

KEEPING SHARP

Checking Skills

Add.

1.	92 + 6	**2.**	53 + 43	**3.**	675 + 20
4.	25 + 3	**5.**	45 + 32	**6.**	86 + 512
7.	431 + 568	**8.**	240 + 513	**9.**	232 + 214
10.	\$7.24 + 0.34	**11.**	\$2.36 + 1.53		

Subtract.

12.	97 − 6	**13.**	56 − 34	**14.**	164 − 54
15.	76 − 3	**16.**	87 − 63	**17.**	689 − 54
18.	978 − 654	**19.**	797 − 451	**20.**	399 − 327
21.	\$8.68 − 6.17	**22.**	\$6.84 − 2.32		

Solve.

23. The parade has 23 tall clowns and 41 short clowns. How many clowns are in the parade?

24. The clowns give away 165 balloons. 43 balloons are red. How many balloons are other colors?

Add.

1.	83 + 7	**2.**	27 + 34	**3.**	48 + 49
4.	92 + 45	**5.**	182 + 26	**6.**	143 + 194
7.	128 + 45	**8.**	265 + 284	**9.**	472 + 187
10.	\$6.54 + 2.63	**11.**	\$1.19 + 7.37		

Subtract.

12.	20 − 6	**13.**	78 − 59	**14.**	683 − 25
15.	126 − 34	**16.**	659 − 394	**17.**	729 − 258
18.	391 − 58	**19.**	749 − 370	**20.**	491 − 402
21.	\$8.97 − 7.59	**22.**	\$3.08 − 1.43		

Solve.

23. 72 children have cats. 185 children have dogs. How many children have cats or dogs for pets?

24. There are 82 pets at the pet show. 39 pets are cats. The rest are dogs. How many dogs are there?

Add.

1. 75 + 65	**2.** 89 + 43	**3.** 67 + 59
4. 398 + 26	**5.** 194 + 507	**6.** 375 + 259
7. 296 + 217	**8.** 434 + 388	**9.** 162 + 98
10. $1.96 + 4.56	**11.** $3.17 + 3.83	

Subtract.

12. 140 − 78	**13.** 824 − 676	**14.** 938 − 449
15. 413 − 229	**16.** 531 − 285	**17.** 723 − 696
18. 550 − 356	**19.** 603 − 236	**20.** 705 − 278
21. $8.10 − 5.13		**22.** $8.00 − 2.36

Solve.

23. One book has 288 pages. Another book has 294 pages. Brian read both books. How many pages did Brian read?

24. Sue's book has 341 pages. She has read 165 pages. How many pages does Sue have left to read?

Solve.

1. 43 children collect stamps. 17 children collect coins. How many more children collect stamps than coins?

2. Joy had 214 stamps in her collection. She collected 59 new stamps. How many stamps does Joy have in all?

3. Bob delivers 234 papers. Ray delivers 158 papers. How many fewer papers does Ray deliver?

4. There are 182 customers on Jim's paper route. 30 are away on holiday and have stopped delivery. How many papers does Jim deliver?

5. 80 adults buy tickets for the school concert. 84 children also buy tickets. How many buy tickets in all?

6. 202 people are at the concert. 96 are adults. How many are children?

7. Andy's jigsaw puzzle has 213 pieces. Meg's puzzle has 143 pieces more than Andy's. How many pieces are in Meg's puzzle?

8. A jigsaw puzzle costs $2.21. Bill gives the clerk $4.01. How much money does Bill get back from the clerk?

9. Ann buys a doll for $2.85 and a game for $3.79. How much does she spend?

8 MULTIPLICATION

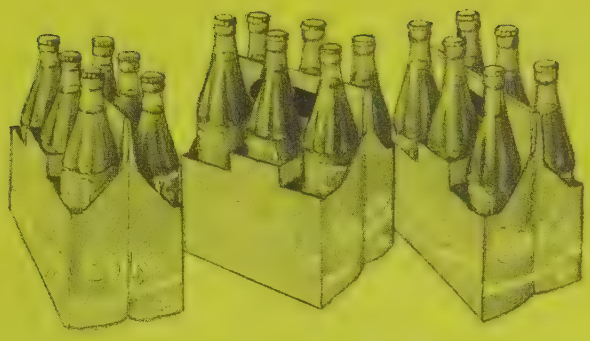
Repeated Addition

4 groups of 2 bottles.
How many bottles in all?

$$2 + 2 + 2 + 2 = 8$$

4 groups of 2 are 8.
There are 8 bottles in all.

Working Together



1. How many groups of bottles?
2. How many in each group?
3. Complete these sentences.

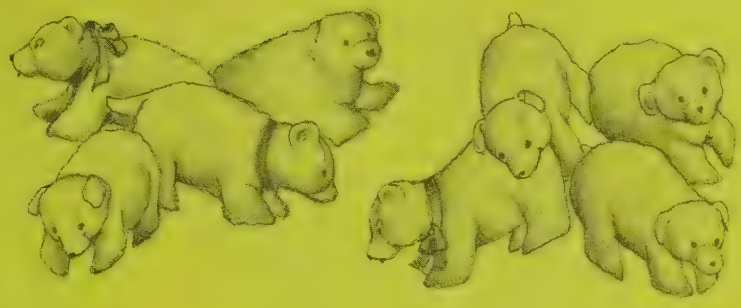
   $6 + 6 + 6 =$ ▒▒

   3 groups of 6 are ▒▒

4. How many groups of bears?
5. How many in each group?
6. Complete these sentences.

   $4 + 4 =$ ▒▒

   ▒▒ groups of ▒▒ are ▒▒



Exercises

Write two sentences for each picture.

Example:

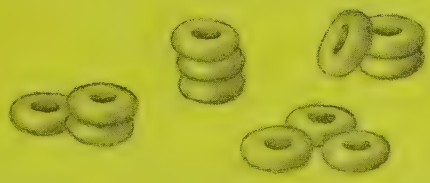
For

write $4 + 4 + 4 = 12$

and 3 groups of 4 are 12.

1.

2.



Draw a picture and write two sentences for each.

Example: 2 groups of 3

Draw

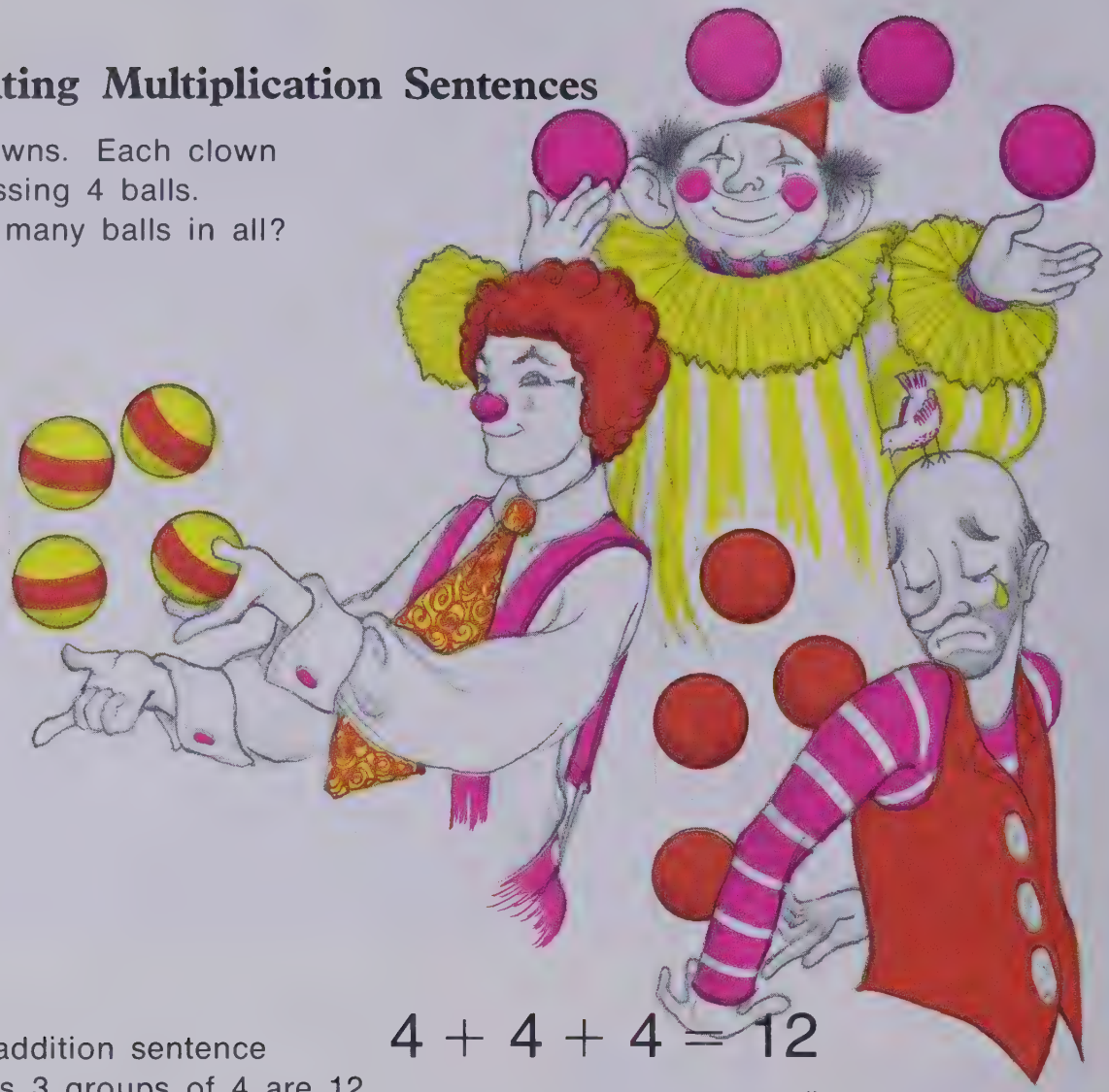
Write $3 + 3 = 6$

and 2 groups of 3 are 6.

3. 3 groups of 5
4. 5 groups of 3
5. 3 groups of 1
6. 6 groups of 4
7. 5 groups of 2
8. 2 groups of 6
9. 3 groups of 3
10. 6 groups of 0
11. 4 groups of 4

Writing Multiplication Sentences

3 clowns. Each clown is tossing 4 balls.
How many balls in all?



The addition sentence shows 3 groups of 4 are 12.

$$4 + 4 + 4 = 12$$

The **multiplication sentence** also shows 3 groups of 4 are 12.

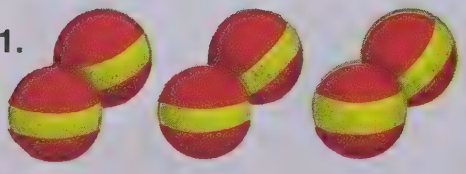
$$3 \times 4 = 12$$

3 **times** 4 equals 12.

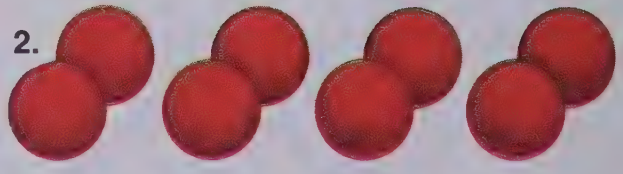
Working Together

Give an addition sentence and a multiplication sentence for each picture.

1.



2.

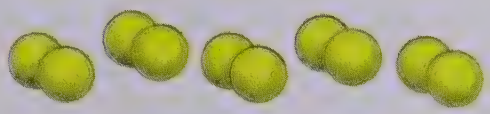


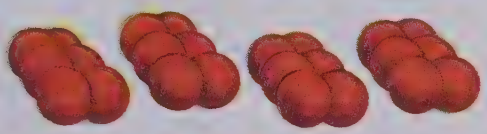
Draw a picture and give a multiplication sentence for each.

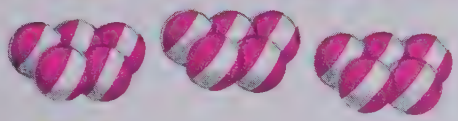
3. 2 groups of 6 **4.** 3 times 1 **5.** 5×3 **6.** 1×5

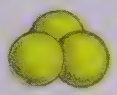
Exercises

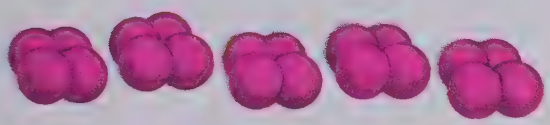
Write a multiplication sentence for each picture.

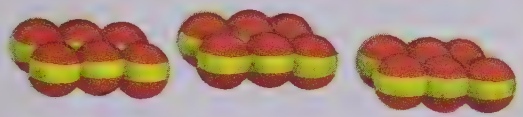
1. 

2. 

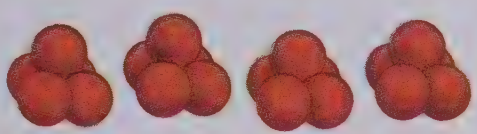
3. 

4. 

5. 

6. 

7.

8. 

Draw a picture and write a multiplication sentence for each.

9. 2 groups of 5

10. 4 groups of 4

11. 5 times 1

12. 6 times 2

13. 3×3

14. 1×4

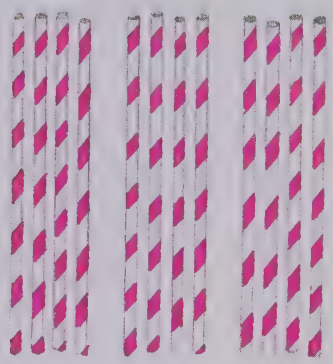
15. 6×4

16. 2×3

17. 5×5

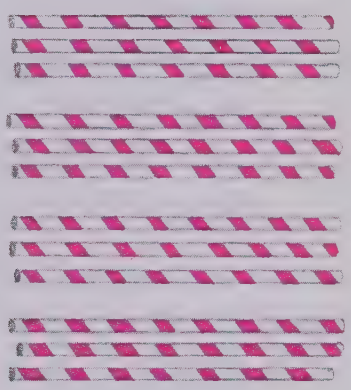
18. 4×3

Here are 3 groups of 4 straws.



1. Use all the straws. How many squares can you make?

Here are 4 groups of 3 straws.



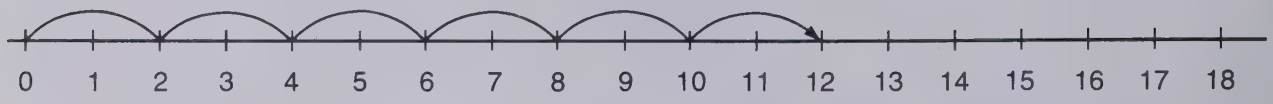
2. Use all the straws. How many triangles can you make?

(Don't bend any straws!)

try this

Exploring Facts Using 2

Start at 0 and make 6 jumps of 2 on a number line. Where do you land?

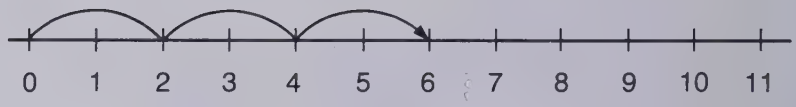


$$6 \times 2 = 12$$

6 jumps of 2 end at 12.

Working Together

This number line shows jumps of 2. Complete each of these.



1. ▒ jumps of 2

2. ▒ jumps of 2 end at ▒

3. ▒ × 2 = ▒

Mark a number line and give a multiplication sentence for each.

4. 5 jumps of 2 **5.** 9 × 2 **6.** 0 × 2

Exercises

Mark a number line and write a multiplication sentence for each.

1. 5 × 2 **2.** 2 × 2 **3.** 7 × 2 **4.** 4 × 2

Multiply. Use a number line if you need to.

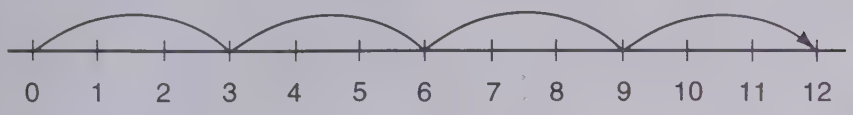
5. 6 × 2 **6.** 3 × 2 **7.** 1 × 2 **8.** 8 × 2

Complete.

9. ▒ × 2 = 10 **10.** ▒ × 2 = 16 **11.** ▒ × 2 = 8 **12.** ▒ × 2 = 14

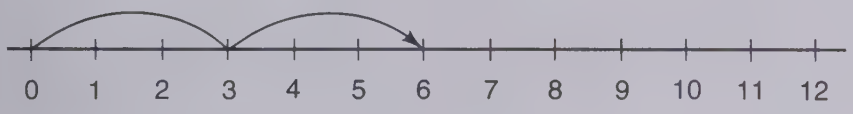
Exploring Facts Using 3

The jumps on this number line show 4×3.



$4 \times 3 = 12$

The jumps on this number line show 2×3.



$2 \times 3 = 6$

Exercises

Mark a number line and write a multiplication sentence for each.

1. 3×3 **2.** 7×3 **3.** 1×3 **4.** 8×3

Multiply. Use a number line if you need to.

5. 5×3 **6.** 0×3 **7.** 9×3 **8.** 6×3

9. 3×2 **10.** 6×2 **11.** 2×3 **12.** 8×2

13. 5×2 **14.** 4×3 **15.** 9×2 **16.** 2×2

Complete.

17. $\square \times 3 = 18$ **18.** $3 \times \square = 9$ **19.** $\square \times 3 = 15$ **20.** $\square \times 3 = 24$

Copy and complete the patterns.

21. 2, 4, 6, $\square$, 10, $\square$, $\square$, $\square$, 18

22. 3, 6, 9, $\square$, $\square$, 18, $\square$, $\square$, $\square$

Write a multiplication sentence and answer each question.

23. 5 clowns.
3 hats for each clown.
How many hats in all?

24. 9 children.
3 tickets for each child.
How many tickets in all?

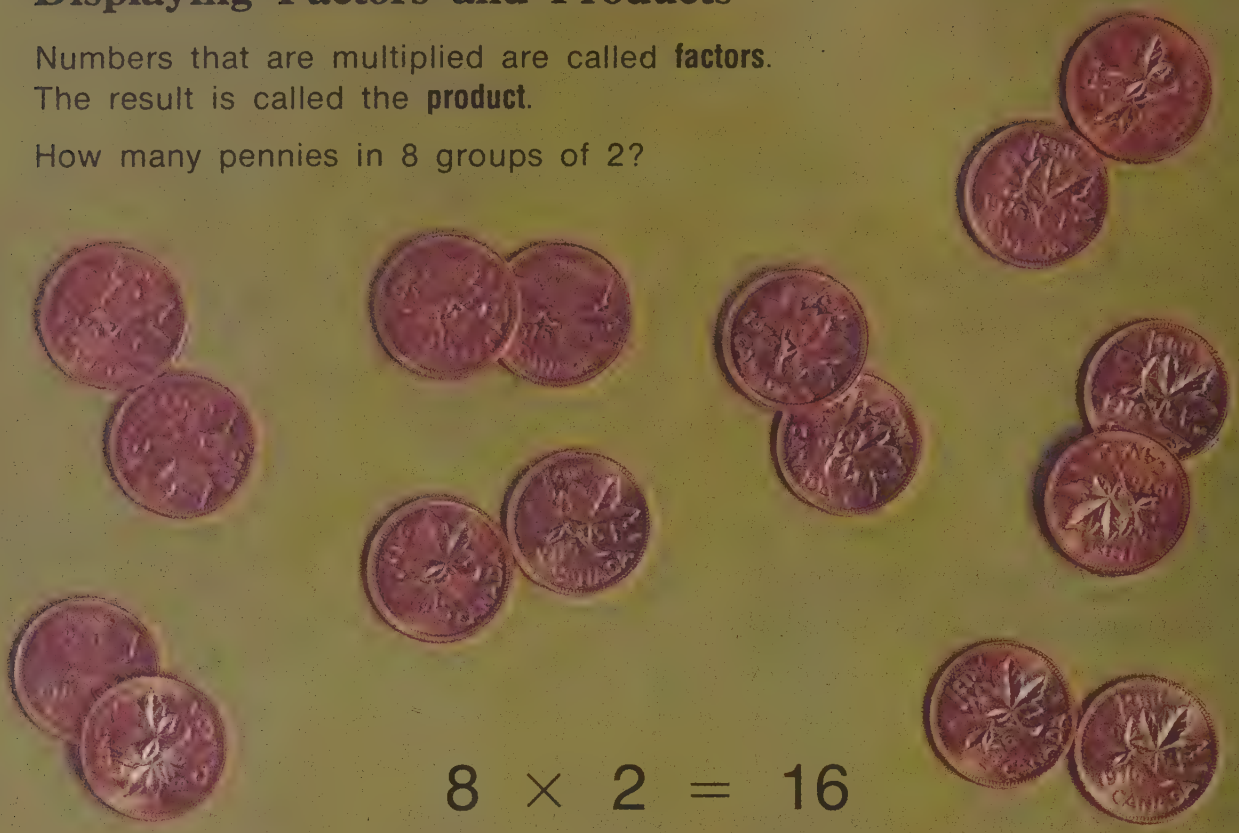
25. 4 drinks.
2 straws for each drink.
How many straws in all?

26. 7 ice cream cones.
2 scoops on each cone.
How many scoops in all?

Displaying Factors and Products

Numbers that are multiplied are called **factors**.
The result is called the **product**.

How many pennies in 8 groups of 2?



$$8 \times 2 = 16$$

factor factor product

Working Together

In the multiplication sentence $7 \times 3 = 21$,

1. which numbers are the factors?
2. which number is the product?

Tell which picture matches each pair of factors.
Then give a multiplication sentence for each pair.

3. 5×2 **4.** 4×3

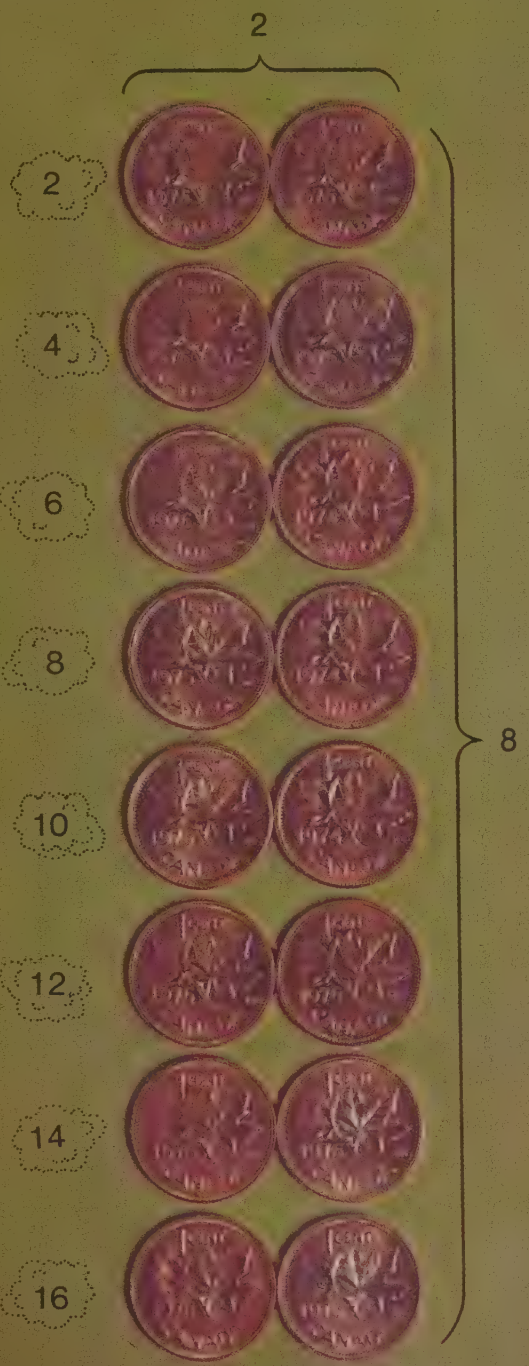
Picture A

Picture B

Draw pictures with 3 ●'s in each row and
give multiplication sentences to show

5. the product of the factors 6 and 3. **6.** 3×3 **7.** 1×3

Placing the pennies like this can show the factors better. This also makes it easier to count to find the product.



There are 16 pennies in 8 groups of 2.

Exercises

Write a multiplication sentence for each picture.

1.

2.

3.

Draw pictures with ●'s lined up in rows and write multiplication sentences to show

4. the product of the factors 3 and 2.

5. the product of the factors 8 and 3.

6. the product of 2 and 3.

7. the product of 7 and 2.

8. 2×2 **9.** 9×2

10. 9×3 **11.** 4×3

12. 5×2 **13.** 1×2

14. 7×3 **15.** 6×3

Exploring 4 as a Factor

The Mounties rode in rows of 4.
How many Mounties in 7 rows?

$$7 \times 4 = 28$$

There are 28 Mounties in 7 rows.

Working Together

Draw pictures with 4 ●'s in each row and give multiplication sentences to show

1. the product of 6 and 4.

2. the product of 1 and 4.

Multiply. Draw a picture if you need to.

3. 2×4

4. 8×4

5. 7×4

Exercises

Draw pictures with 4 ●'s in each row and write multiplication sentences to show

1. the product of 9 and 4.

2. the product of 3 and 4.

Write a multiplication sentence to show how many Mounties in

3. 5 rows of 4.

4. 0 rows of 4.

5. 4 rows of 4.

Multiply. Draw a picture if you need to.

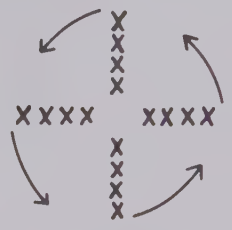
6. 2×3	**7.** 5×2	**8.** 2×4	**9.** 6×3
10. 8×4	**11.** 5×4	**12.** 6×2	**13.** 9×4
14. 9×2	**15.** 8×2	**16.** 4×4	**17.** 6×4
18. 7×3	**19.** 7×4	**20.** 3×4	**21.** 0×4

Complete.

22. $7 \times \square = 28$	**23.** $8 \times \square = 24$
24. $\square \times 4 = 16$	**25.** $\square \times 4 = 4$
26. $7 \times \square = 14$	**27.** $4 \times \square = 12$

When groups perform, drawings are used to help plan the show.

This drawing shows how 16 horses and riders could form a "windmill" with rows of 4.



Make a drawing that shows how 20 members of a marching band could form each of these.

1. Hi **2.** OK

Show how

3. 18 horses could appear in 6 rows.

4. 18 horses could appear in 5 rows.

5. 8 dancers could form a circle.

6. 12 flag carriers could form a square.

PROBLEM SOLVING

Exploring 5 as a Factor

9 rows of chips. 5 bags in each row. How many bags of chips in all?

$$9 \times 5 = 45$$

There are 45 bags of chips in all.

Exercises

Write a multiplication sentence to show how many bags in

1. 4 rows. **2.** 6 rows.
3. 2 rows. **4.** 8 rows.
5. 5 rows. **6.** 1 row.
7. 3 rows. **8.** 7 rows.

Multiply. Draw a picture if you need to.

9. 3×5	**10.** 6×5	**11.** 8×5
12. 2×5	**13.** 5×2	**14.** 5×3
15. 6×3	**16.** 7×4	**17.** 7×5
18. 5×5	**19.** 0×5	**20.** 8×2
21. 9×3	**22.** 4×5	**23.** 9×5
24. 0×2	**25.** 8×3	**26.** 5×4

Complete.

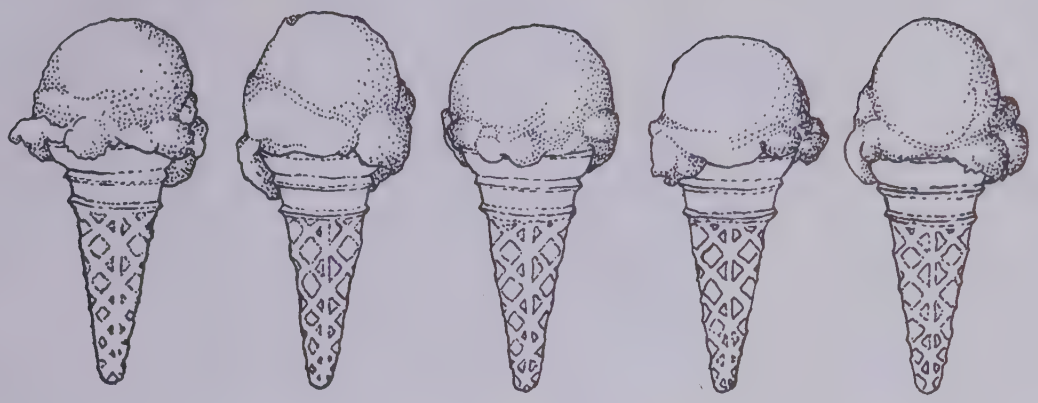
27. $\square \times 3 = 21$	**28.** $9 \times \square = 45$
29. $1 \times \square = 5$	**30.** $8 \times \square = 32$
31. $6 \times \square = 24$	**32.** $\square \times 2 = 18$

Copy and complete these patterns.

33. 4, 8, 12, $\square$, $\square$, $\square$, $\square$, $\square$, 36
34. 5, 10, $\square$, 20, $\square$, $\square$, $\square$, $\square$, $\square$

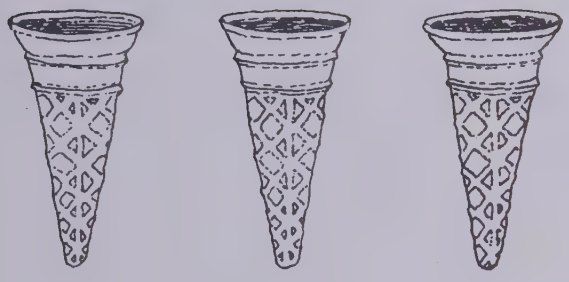
Exploring 0 or 1 as a Factor

How many scoops of ice cream in all?



$5 \times 1 = 5$

5 scoops.



$3 \times 0 = 0$

0 scoops.

Working Together

How many scoops in all?

1. 4 cones, 1 scoop in each.
   $4 \times 1 =$ ▒
2. 1 cone with 2 scoops.
   $1 \times 2 =$ ▒
3. 6 cones, 0 scoops in each.
   $6 \times 0 =$ ▒
4. 0 cones, there would have been 3 scoops in each cone.
   $0 \times 3 =$ ▒

Tell what happens in multiplying

5. when 1 is a factor.
6. when 0 is a factor.

Exercises

Multiply.

1.	8×1	**2.**	5×0
3.	1×0	**4.**	1×4
5.	1×1	**6.**	0×1
7.	7×0	**8.**	9×1
9.	1×3	**10.**	0×5
11.	0×0	**12.**	6×1
13.	2×0	**14.**	1×5
15.	2×1	**16.**	4×0
17.	9×0	**18.**	7×1
19.	3×1	**20.**	0×7
21.	0×2	**22.**	8×0
23.	5×1	**24.**	0×4

Practice

The fair is in town. For each problem, write a multiplication sentence and answer the question.

1. 8 cars on the Tilt-a-Whirl. 3 children in each car. How many are riding the Tilt-a-Whirl?
2. 7 children want to ride the Ferris Wheel. They need 2 tickets each. How many tickets do they need in all?
3. The Scrambler can hold 3 children in each of 9 buckets. How many can ride the Scrambler each time?
4. The Haunted House costs 4 tickets. How many tickets do 5 children need for the Haunted House?

5. The roller coaster holds 2 people in each seat. There are 4 seats in a car. How many can each car hold?

Multiply.

6. 9×2	**7.** 3×1	**8.** 7×3
9. 6×0	**10.** 1×2	**11.** 8×5
12. 7×4	**13.** 5×3	**14.** 0×4

Complete.

15. $8 \times \square = 16$	**16.** $\square \times 3 = 18$
17. $4 \times \square = 20$	**18.** $9 \times \square = 36$

Safety rules
do not allow
more than 16 people
on the Crazy Car ride.
In the 8 cars on the ride,
5 cars have 2 people,
2 have 3 people,
and 1 car has 1 person.
Should the operator
start the ride?

PROBLEM SOLVING

Showing a Product Two Ways

There are two multiplication sentences that show how many buttons are in this **array**.

Working Together

Draw an array with 5 rows and 3 columns of dots, and an array with 3 rows and 5 columns of dots.

1. How many dots are in each array?
2. Give two multiplication sentences for the arrays.

Draw an array of dots to show each product.
Give two multiplication sentences for each array.

3. the product of 2 and 6
4. the product of 4 and 3

Exercises

Use these arrays to answer the questions.

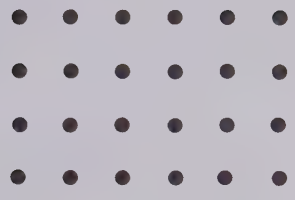
Array B

Array A

Array C

Array E

Array F



Array D

1. Which array shows the product of 7 and 2?
2. What two factors are shown in Array F?
3. Find two arrays that show the product of 3 and 6.
4. Which array could you use for 2×5?
5. Draw another array that shows the product of 2 and 5.
6. For each array above, write two multiplication sentences.

Draw two arrays for each of these.

7. the product of 6 and 2
8. the product of 3 and 4

Draw one array and write two multiplication sentences for the product of each pair.

9. 3 and 2
10. 2 and 4
11. 4 and 7
12. 6 and 5

Using Multiplication with Arrays

The array is partly covered.
How many flowers are in the array?

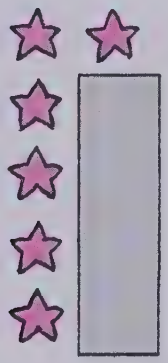
6 rows, 4 columns

$6 \times 4 = 24$ or $4 \times 6 = 24$

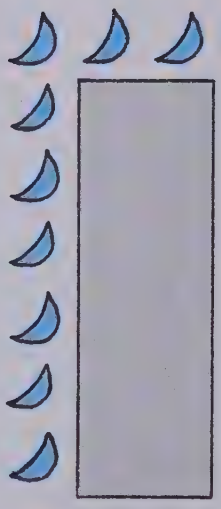
There are 24 flowers in the array.

Working Together

Array A



Array B



Answer these questions
for each array.

1. How many rows?
2. How many columns?
3. How many objects in all?
4. What are the two multiplication sentences?

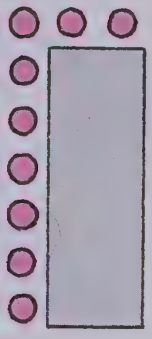
Exercises

Write a multiplication sentence to show the number of objects in each array.

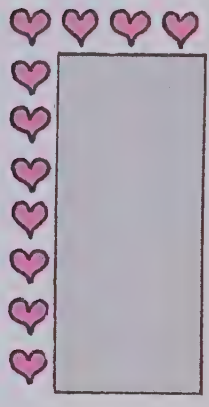
1.

2.

3.

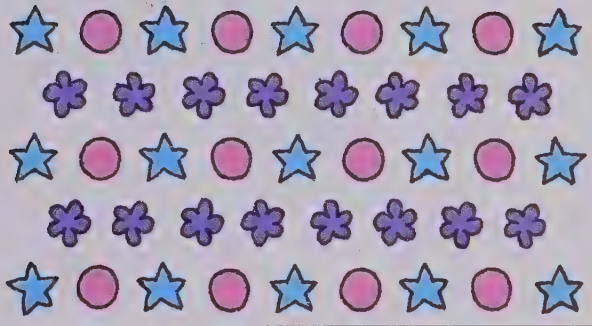
4. 

5.

6. 

Write a multiplication sentence to show

7. the number of ☆'s.
8. the number of ✿'s.
9. the number of ○'s.



Complete each subtraction chain.

1. 18 − 3 → − 3 → − 3 → − 3 → − 3 → − 3 → 0

2. 20 − 4 → − 4 → − 4 → − 4 → − 4 → − 4

3. 25 − 5 → − 5 → − 5 → − 5 → − 5 → − 5

KEEPING SHARP

Practice

A block of stamps is also an array.

Use multiplication.

1. 3 rows, 5 columns in a block. How many stamps in all?
2. 6 rows, 4 columns in a block. How many stamps in all?
3. 4 rows, 7 columns in a block. How many stamps in all?
4. 7 rows, 5 columns in a block. How many stamps in all?

How many rows or columns?

5. 18 stamps, 3 rows, ▒ columns
6. 24 stamps, 6 rows, ▒ columns
7. 12 stamps, ▒ rows, 6 columns
8. 28 stamps, 4 rows, ▒ columns
9. 35 stamps, ▒ rows, 5 columns
10. 35 stamps, ▒ rows, 7 columns

Complete.

11. $3 \times \square = 9$
12. $4 \times \square = 8$
13. $\square \times 3 = 21$
14. $7 \times \square = 14$
15. $6 \times \square = 30$
16. $\square \times 3 = 12$
17. $5 \times \square = 20$

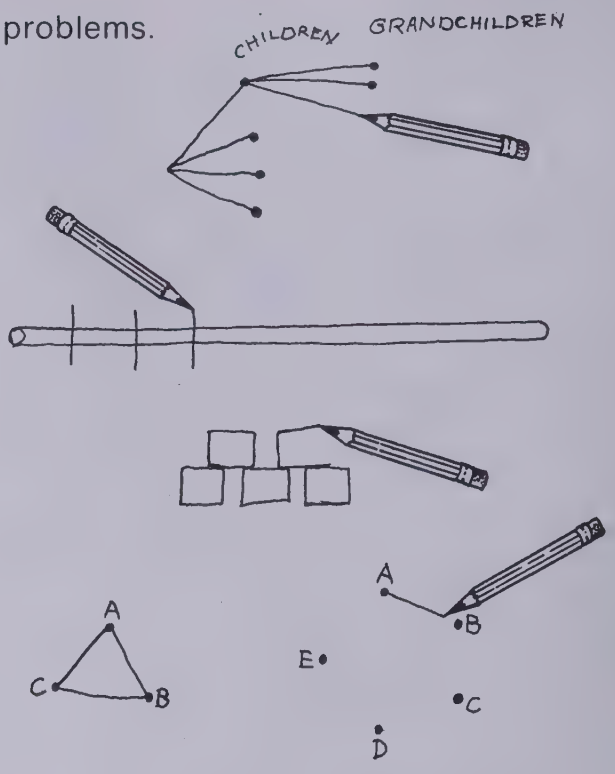
Use $<$, $>$, or $=$

18. $6 \times 3 \bigcirc 9 \times 2$
19. $2 \times 4 \bigcirc 8 \times 0$
20. $4 \times 3 \bigcirc 3 + 4$
21. $1 \times 5 \bigcirc 15$
22. $4 \times 6 \bigcirc 6 \times 4$
23. $8 \times 3 \bigcirc 9 \times 2$
24. $7 \times 2 \bigcirc 9 + 5$

Drawing Pictures

Drawing pictures can help solve problems.

Copy and complete the picture.
Then answer the question.



1. Mr. and Mrs. Rogers have 4 children. Each child has 3 children. How many grandchildren in all?
2. How many times do you have to cut a drinking straw to get 10 pieces?
3. When you build a pyramid of 28 blocks, in which row will you put the fifteenth (15th) block you use?
4. Anne, Bob, and Clare can make a pair 3 ways. How many ways can Anne, Bob, Clare, Del, and Ed make a pair?

Draw pictures to help you answer these questions.

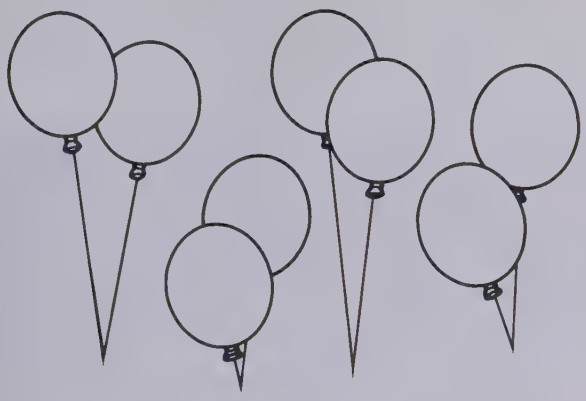
5. How many pieces do you get if you cut across a pie 3 times?
6. 3 black marbles, 2 white marbles. How many different color patterns can you make with 3 marbles in a row?
7. Anne, Bob, Clare, and Del are standing in line. Bob is the only person between Anne and Clare. Anne and Del are both ahead of Clare. Who is first in line?
8. Anne, Bob, Clare, and Del are throwing a ball. Anne always throws to Clare. Del and Bob always throw to Anne. Clare takes turns throwing to Del and Bob. Del throws the ball first. After 20 throws, who has the ball? Who made the most throws?

PROBLEM SOLVING

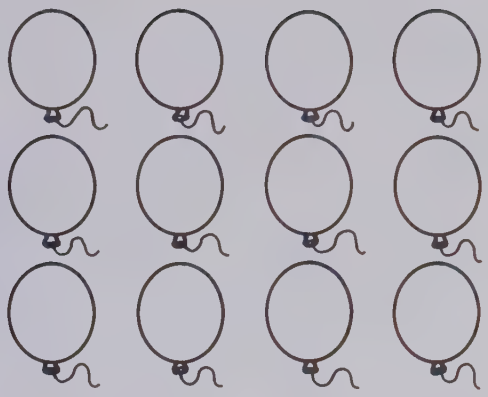
Checking Up

Write a multiplication sentence for each picture.

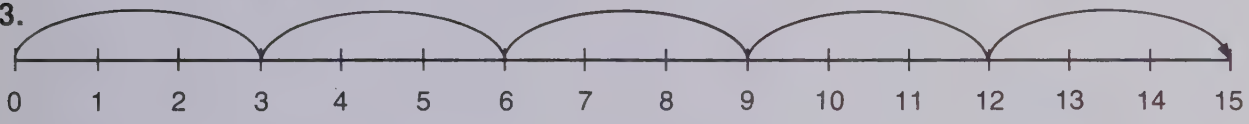
1.



2.



3.



Draw a picture and write a multiplication sentence for each.

4. 3 groups of 5

5. an array with 6 rows of 4

6. a number line with 7 jumps of 1

Write a multiplication sentence to show

7. the product of 5 and 4.

8. the product of 6 and 3.

Multiply.

9. 8×4 **10.** 3×3 **11.** 9×2 **12.** 0×3 **13.** 5×2

14. 1×5 **15.** 4×0 **16.** 7×5 **17.** 6×1 **18.** 4×4

Write two multiplication sentences for each array.

19.

20.

Solve.

21. 3 tickets for each ride on the Ferris Wheel.
7 children want to ride.
How many tickets needed?

22. 4 cookies in a package.
9 packages.
How many cookies in all?

9 EXPLORING DIVISION

Finding the Number in Each Group

Mary, Ben, and Alice share 15 beads.
How many beads does each get?

Each takes 1 . . .

then another . . .

and another . . .

and another . . .

and another . . .

until . . .

Mary, Ben, and Alice each have 5 beads.

15 shared by 3 gives 5 to each.

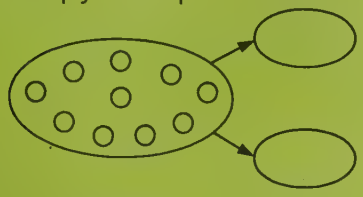
This can be shown with the **division sentence**

$$15 \div 3 = 5$$

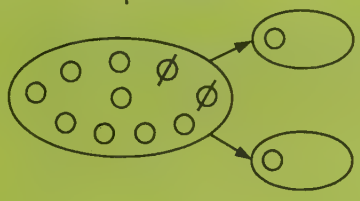
15 **divided by** 3 equals 5.

Working Together

1. 10 beads to share in 2 equal groups. Copy the picture.



2. Show the sharing like this. Complete the picture.



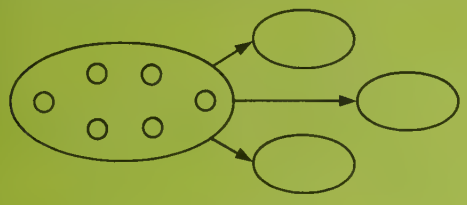
3. How many are in each group?

4. Complete.

$10 \div 2 = \square$

Complete the picture and the division sentence.

5.



$6 \div 3 = \square$

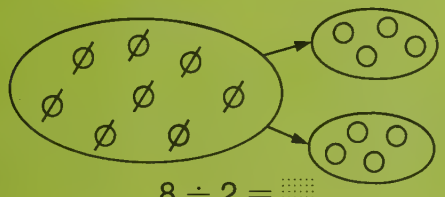
Draw a picture and give the division sentence for each.

6. 12 beads shared equally by 3
7. 24 divided by 4
8. $16 \div 2$

Exercises

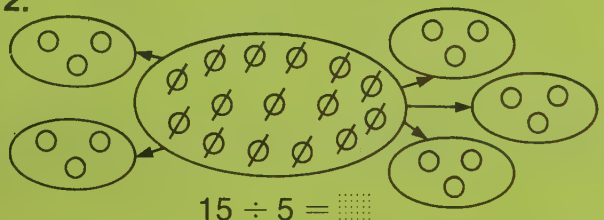
Complete the division sentence for each picture.

1.



$8 \div 2 = \square$

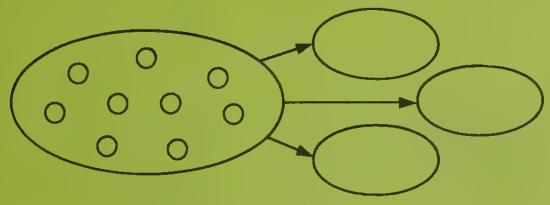
2.



$15 \div 5 = \square$

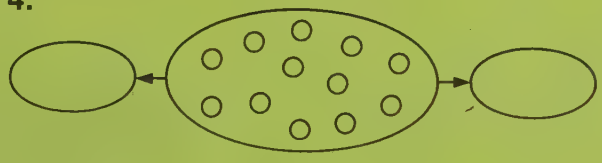
Complete each picture and the division sentence.

3.



$9 \div 3 = \square$

4.

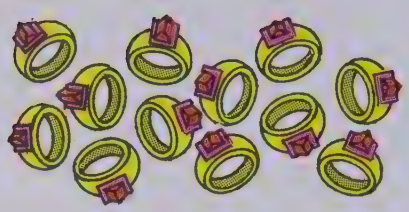


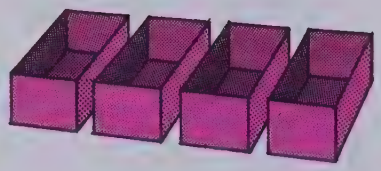
$12 \div 2 = \square$

Draw a picture and write the division sentence for each.

5. $6 \div 2$
6. $21 \div 3$
7. $20 \div 4$
8. $18 \div 3$
9. $10 \div 5$
10. $16 \div 4$
11. $25 \div 5$
12. $5 \div 5$

Using Subtraction to Find the Quotient





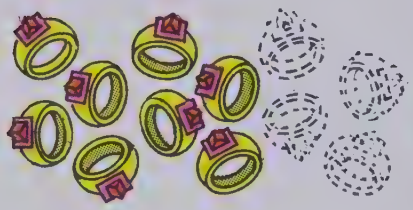
12 rings.
4 ring boxes.
How many rings for each box?

To place one ring in each box,
4 rings are needed.

Take 4 rings, one for each box.

Share 4, one for each box.

Subtract 4 to keep track.

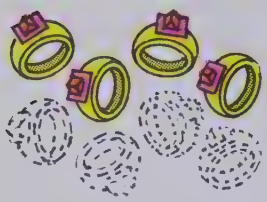


$$\begin{array}{r} 12 \\ -\ 4 \\ \hline 8 \end{array}$$ rings left.

Take 4 rings.

Share 4.

Subtract 4.



$$\begin{array}{r} 8 \\ -\ 4 \\ \hline 4 \end{array}$$ rings left.

Take 4 rings.

Share 4.

Subtract 4.

$$\begin{array}{r} 4 \\ -\ 4 \\ \hline 0 \end{array}$$ rings left.

There are 3 rings for each box.

There were 3 subtractions.

The result in a division is the **quotient.**

$$12 \div 4 = 3$$

3 is the quotient in this division.

Working Together

15 rings. Each child takes one ring at a time.

1. How many rings are taken each time if 3 children are sharing?

Complete the subtraction chain.

2. 15 $\xrightarrow{-3}$ $\square$ $\xrightarrow{-3}$ $\square$ $\xrightarrow{-3}$ $\square$ $\xrightarrow{-3}$ $\square$ $\xrightarrow{-3}$ 0

3. In the chain, what number is subtracted each time?
4. In the chain, how many subtractions are there?

Complete these sentences.

5. 15 divided by 3 equals $\square$
6. $15 \div 3 = \square$

What number do you subtract each time to find the quotient?

7. $20 \div 4$
8. $24 \div 3$

Use subtraction to find each quotient. Write the division sentence.

9. $20 \div 4$
10. $24 \div 3$

Exercises

Use subtraction to find each quotient. Write the division sentence.

1. $12 \div 3$	**2.** $8 \div 2$	**3.** $15 \div 5$
4. $16 \div 4$	**5.** $32 \div 4$	**6.** $40 \div 5$
7. $12 \div 2$	**8.** $5 \div 1$	**9.** $35 \div 5$
10. $27 \div 3$	**11.** $30 \div 5$	**12.** $14 \div 2$
13. $3 \div 3$	**14.** $24 \div 4$	**15.** $25 \div 5$

Add.

1. $54 + 12$	**2.** $25 + 48$
3. $574 + 53$	**4.** $185 + 372$
5. $285 + 337$	**6.** $324 + 64$
7. $136 + 36$	**8.** $76 + 24$
9. $286 + 49$	**10.** $659 + 64$
11. $232 + 245$	**12.** $157 + 536$

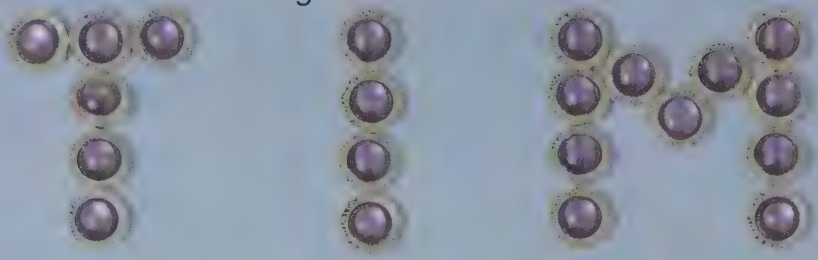
Subtract.

13. $56 - 32$	**14.** $52 - 46$
15. $695 - 48$	**16.** $826 - 671$
17. $831 - 258$	**18.** $467 - 43$
19. $71 - 35$	**20.** $445 - 84$
21. $200 - 86$	
22. $604 - 279$	

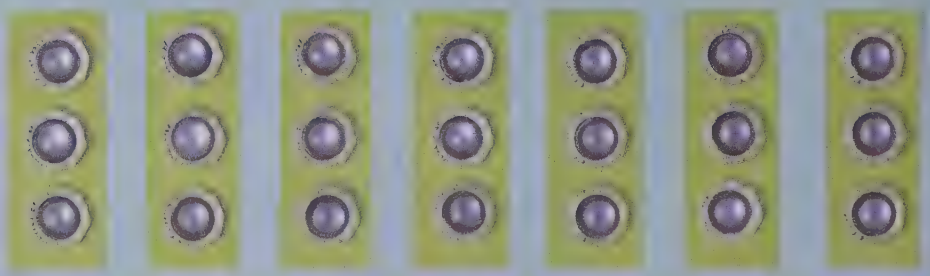
KEEPING SHARP

Finding the Number of Groups

Tim needs 21 buttons to form his name.
The buttons are sold with 3 on a card.
How many cards should Tim get?



Think of 21 buttons in groups of 3.



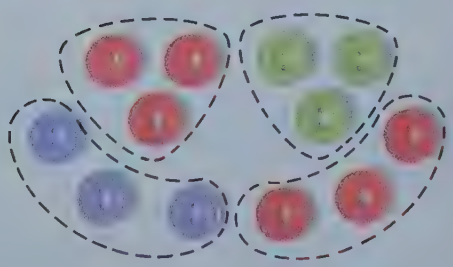
Tim should get 7 cards. $21 \div 3 = 7$

Working Together

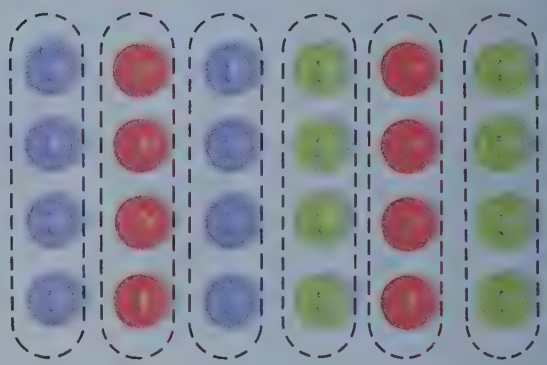
Answer the question and complete the division sentence.

1. 12 buttons in groups of 3.
How many groups of 3?

$12 \div 3 =$ ▒



2.



24 buttons in groups of 4.
How many groups of 4?

$24 \div 4 =$ ▒

3. Draw 16 buttons.
Ring groups of 2.
How many groups of 2?

$16 \div 2 =$ ▒

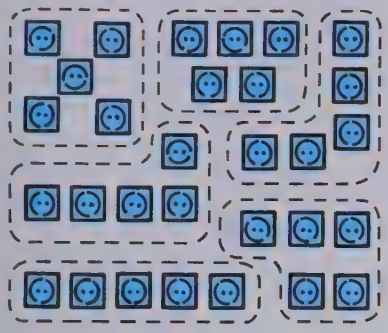
4. Draw 18 buttons.
Ring groups of 3.
How many groups of 3?

$18 \div 3 =$ ▒

Exercises

Answer the question and complete the division sentence.

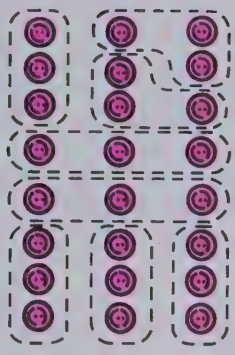
1.



30 buttons. How many groups of 5?

$30 \div 5 =$ ▒

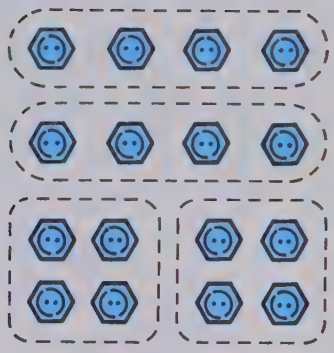
2.



24 buttons. How many groups of 3?

$24 \div 3 =$ ▒

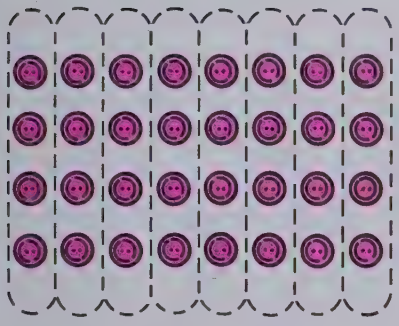
3.



16 buttons. How many groups of 4?

$16 \div 4 =$ ▒

4.



32 buttons. How many groups of 4?

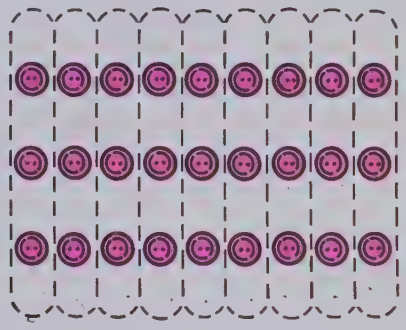
$32 \div 4 =$ ▒

5.

8 buttons. How many groups of 2?

$8 \div 2 =$ ▒

6.



27 buttons. How many groups of 3?

$27 \div 3 =$ ▒

7. Draw 20 ●'s.
Ring groups of 5.
How many groups of 5?

$20 \div 5 =$ ▒

8. Draw 14 ●'s.
Ring groups of 2.
How many groups of 2?

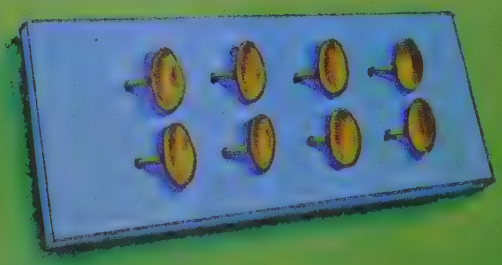
$14 \div 2 =$ ▒

Draw a picture and write the division sentence for each.

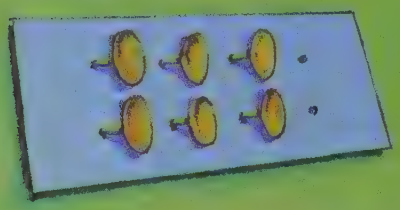
9. $15 \div 5$	**10.** $9 \div 3$	**11.** $28 \div 4$	**12.** $25 \div 5$	**13.** $10 \div 2$
14. $12 \div 4$	**15.** $12 \div 2$	**16.** $15 \div 3$	**17.** $3 \div 1$	**18.** $8 \div 4$
19. $35 \div 5$	**20.** $20 \div 4$	**21.** $4 \div 2$	**22.** $10 \div 5$	**23.** $40 \div 5$

Using Subtraction to Find The Number of Groups

There are 8 tacks on the card.
2 tacks are used to hold each page.
How many pages can be put up?



Take 2 tacks.

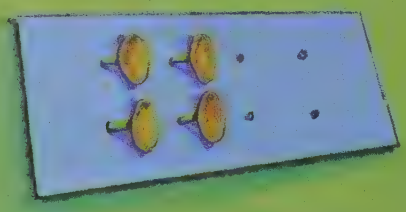


Put up a page.

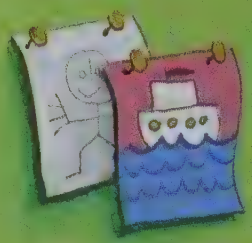
Subtract 2.

$$\begin{array}{r} 8 \\ -\ 2 \\ \hline 6 \end{array}$$ tacks left.

Take 2 tacks.



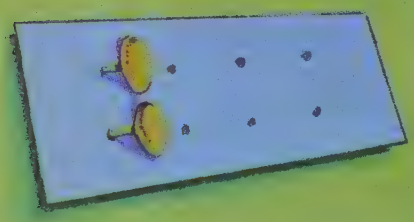
Put up a page.



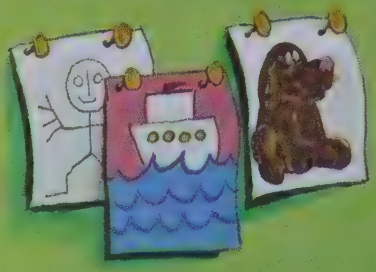
Subtract 2.

$$\begin{array}{r} 6 \\ -\ 2 \\ \hline 4 \end{array}$$ tacks left.

Take 2 tacks.



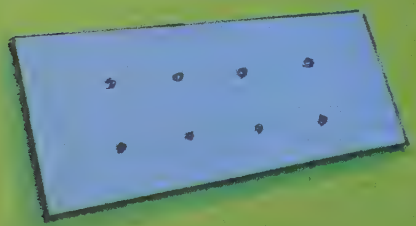
Put up a page.



Subtract 2.

$$\begin{array}{r} 4 \\ -\ 2 \\ \hline 2 \end{array}$$ tacks left.

Take 2 tacks.



Put up a page.

Subtract 2.

$$\begin{array}{r} 2 \\ -\ 2 \\ \hline 0 \end{array}$$ tacks left.

4 pages can be put up.

There were 4 subtractions.

$$8 \div 2 = 4$$

Working Together

What number do you subtract each time to find

1. how many groups of 5 there are in 15?
2. how many groups of 2 there are in 12?

How many times do you subtract in finding

3. how many groups of 5 there are in 15?
4. how many groups of 2 there are in 12?

Give the division sentence that shows

5. how many groups of 5 there are in 15.
6. how many groups of 2 there are in 12.

Use subtraction to find each quotient. Write the division sentence.

7. $32 \div 4$
8. $21 \div 3$

Exercises

Use subtraction to answer each question. Write the division sentence.

1. How many groups of 4 are there in 24?
2. How many groups of 5 are there in 40?
3. How many groups of 2 are there in 18?

Use subtraction to find each quotient. Write the division sentence.

4. $16 \div 4$	**5.** $8 \div 4$	**6.** $15 \div 3$
7. $20 \div 5$	**8.** $18 \div 3$	**9.** $20 \div 4$
10. $30 \div 5$	**11.** $36 \div 4$	**12.** $6 \div 3$
13. $45 \div 5$	**14.** $14 \div 2$	**15.** $4 \div 4$
16. $27 \div 3$	**17.** $25 \div 5$	**18.** $9 \div 3$
19. $28 \div 4$	**20.** $12 \div 3$	**21.** $16 \div 2$
22. $12 \div 4$	**23.** $35 \div 5$	**24.** $24 \div 3$

Copy and complete these multiplication tables.

1.

×	2
1	2
2	4
3	
4	
5	
6	
7	
8	
9	

2.

×	3
1	
2	
3	
4	
5	
6	
7	
8	
9	

3.

×	4
1	
2	
3	
4	
5	
6	
7	
8	
9	

4.

×	5
1	
2	
3	
4	
5	
6	
7	
8	
9	

Multiply. Use a table to help you if needed.

5. 4×3	**6.** 6×5
7. 9×3	**8.** 8×5
9. 9×4	**10.** 8×3
11. 2×4	**12.** 7×4
13. 5×3	**14.** 7×5
15. 9×5	
16. 6×3	
17. 5×4	
18. 6×4	

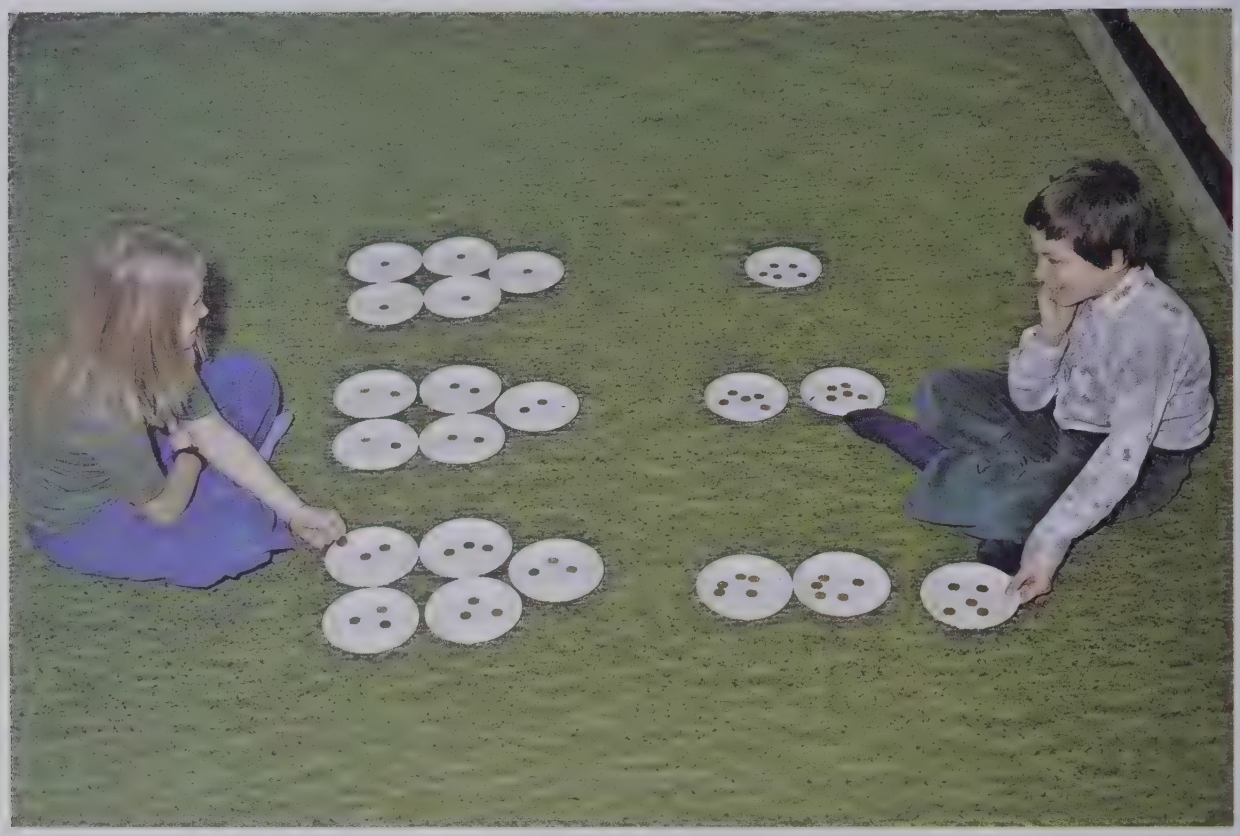
KEEPING SHARP

Practicing Division

Paula and Gordon used pennies to show the steps for $15 \div 5$ two ways.

Paula shows the steps for sharing among 5.

Gordon shows the steps for taking groups of 5.



There are 3 in each share.

There are 3 groups.

$$15 \div 5 = 3$$

Another way to find $15 \div 5$ is to subtract 5 at a time.

Paula takes 5 each time and shares.

Gordon takes 5 in a group each time.

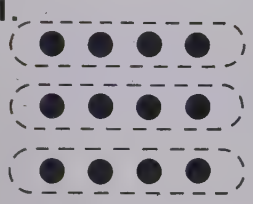
$$\begin{array}{r} 15 \\ -\ 5 \\ \hline 10 \end{array} \qquad \begin{array}{r} 10 \\ -\ 5 \\ \hline 5 \end{array} \qquad \begin{array}{r} 5 \\ -\ 5 \\ \hline 0 \end{array}$$

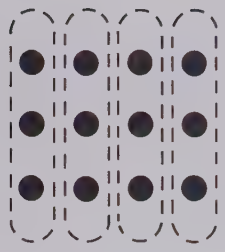
Paula and Gordon each subtracted 5 3 times. So,

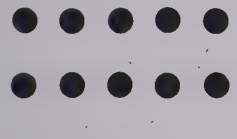
$15 \div 5 = 3$

Working Together

Answer the question and complete the division sentence.

1. 
12 ●'s.
4 ●'s in each group.
How many groups?
$12 \div 4 =$ ▒

2. 
12 ●'s.
4 equal groups.
How many in each group?
$12 \div 4 =$ ▒

3. 
Copy and ring to show groups of 2.
$10 \div 2 =$ ▒

4.
Copy and show 2 equal groups.
$10 \div 2 =$ ▒

5. Draw a picture of 20 ●'s and show $20 \div 5$.

Does your picture show 5 equal groups or 5 in each group?

Use subtraction to find each quotient.
Write the division sentence.

6. $12 \div 4$ **7.** $10 \div 2$
8. $10 \div 5$ **9.** $20 \div 5$

Exercises

Draw a picture and write the division sentence for each.

1. $25 \div 5$ **2.** $27 \div 3$

Subtract to find each quotient.
Write the division sentence.

3. $35 \div 5$ **4.** $12 \div 2$

Divide. Draw a picture or use subtraction if you need to.

5. $18 \div 3$ **6.** $36 \div 4$ **7.** $40 \div 5$ **8.** $16 \div 4$ **9.** $20 \div 4$ **10.** $14 \div 2$

Write the division sentence and answer each question.

11. 8 shoelaces.
2 in each pack.
How many packs?

12. 24 snapshots.
4 on each page.
How many pages?

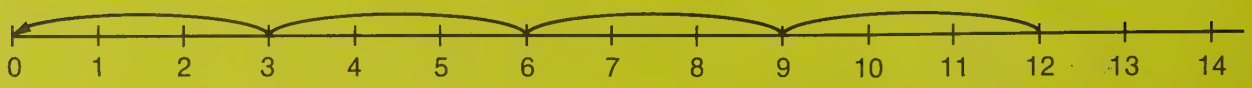
13. 18 spice bottles.
2 shelves.
How many bottles for each shelf?

14. 6 knobs.
3 drawers.
How many knobs for each drawer?

Showing Division on the Number Line

$12 \div 3$ can be shown on the number line.

Start at 12.
Make jumps of 3 and end at 0.

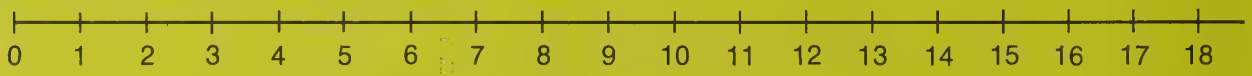


4 jumps are needed.

$$12 \div 3 = 4$$

Working Together

Use this number line to help you with the exercises.



Name the starting point, and the size of each jump.

1. $8 \div 2$
2. $15 \div 5$
3. $18 \div 3$
4. $5 \div 1$

How many jumps are needed to reach 0?

5. Start at 12, make jumps of 4.
6. Start at 9, make jumps of 3.

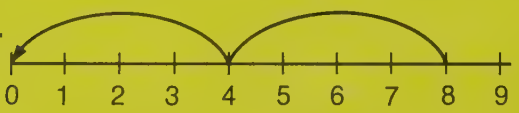
Mark a number line and give the division sentence for each.

7. 14 divided by 2 **8.** $15 \div 3$

Exercises

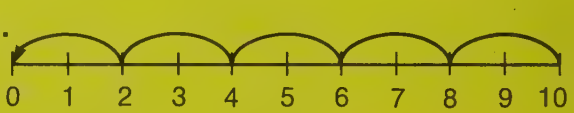
Complete the division sentence for each of these.

1.



$8 \div 4 =$ ▒

2.



▒ ÷ ▒ = ▒

Mark a number line and write the division sentence for each.

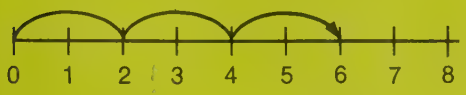
3. $6 \div 1$ **4.** $6 \div 2$ **5.** $6 \div 3$ **6.** $6 \div 6$

Divide. Use a number line if you need to.

7. $20 \div 5$ **8.** $4 \div 4$ **9.** $4 \div 2$ **10.** $18 \div 2$ **11.** $24 \div 4$
12. $24 \div 3$ **13.** $20 \div 4$ **14.** $12 \div 2$ **15.** $21 \div 3$ **16.** $32 \div 4$

Relating Multiplication and Division on the Number Line

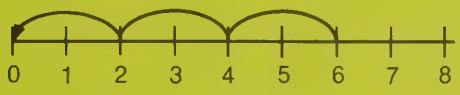
To find 3×2, start at 0 and make 3 jumps of 2.



3 jumps of 2 end at 6.

$$3 \times 2 = 6$$

To find $6 \div 2$, start at 6 and make jumps of 2 back to 0.



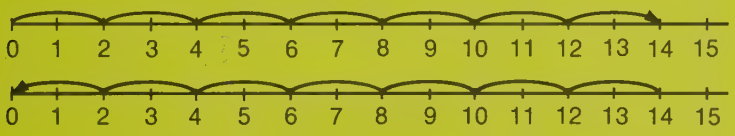
3 jumps are needed.

$$6 \div 2 = 3$$

Working Together

Complete the number sentence for each.

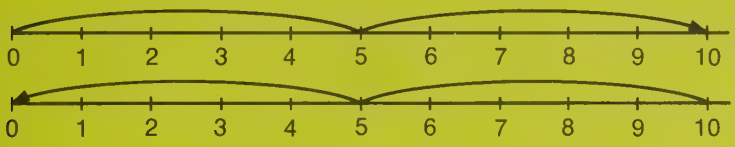
1.



$7 \times 2 =$ ▒

$14 \div 2 =$ ▒

2.



$2 \times 5 =$ ▒

$10 \div 5 =$ ▒

Mark a number line for each and complete the sentence.

3. $6 \times 3 =$ ▒
$18 \div 3 =$ ▒

4. $2 \times 4 =$ ▒
$8 \div 4 =$ ▒

5. $4 \times 1 =$ ▒
$4 \div 1 =$ ▒

Exercises

Mark a number line for each and complete the sentence.

1. $5 \times 3 =$ ▒
$15 \div 3 =$ ▒

2. $7 \times 4 =$ ▒
$28 \div 4 =$ ▒

3. $2 \times 2 =$ ▒
$4 \div 2 =$ ▒

Write the number sentences. Use a number line if you need to.

4. 8×3
$24 \div 3$

5. 9×5
$45 \div 5$

6. 5×4
$20 \div 4$

7. 8×4
$32 \div 4$

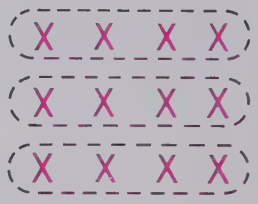
8. 8×2
$16 \div 2$

Relating Multiplication and Division

An array can be used to show multiplication and division.

3 groups of 4.
12 in all.

$3 \times 4 = 12$

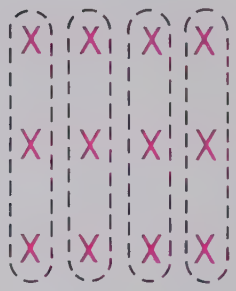


12 divided into 3 groups.
4 in each group.

$12 \div 3 = 4$

4 groups of 3.
12 in all.

$4 \times 3 = 12$

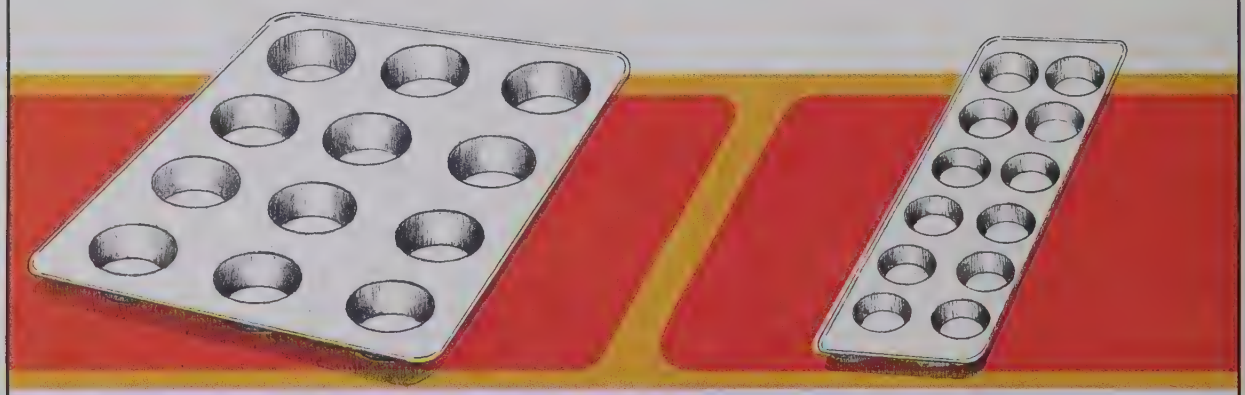


12 divided into 4 groups.
3 in each group.

$12 \div 4 = 3$

The three numbers 3, 4, and 12 give us a family of four multiplication and division facts.

The muffin trays show two arrays with 12 in each array.



1. Show 18 ●'s in two different arrays.

2. Show 24 ●'s in different arrays.

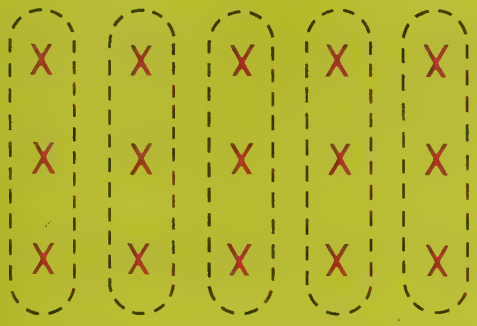
3. How many different ways can you show 24 ●'s in an array?

PROBLEM SOLVING

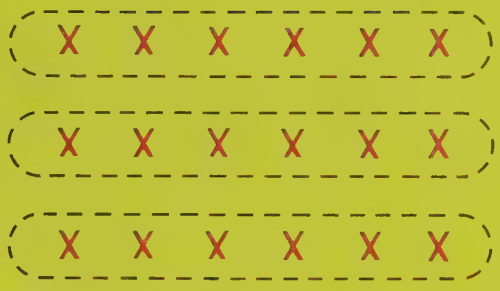
Working Together

Give a multiplication sentence and a division sentence to match each picture.

1.



2.



Draw an array and ring its members to show each pair of facts.

3. $14 \div 7 = 2$
$7 \times 2 = 14$

4. $14 \div 2 = 7$
$2 \times 7 = 14$

5. $16 \div 4 = 4$
$4 \times 4 = 16$

Write two multiplication sentences and two division sentences for each group of numbers.

6. 6, 2, 12

7. 7, 3, 21

8. 3, 1, 3

Exercises

Draw an array and ring its members to show each of these. Write a multiplication sentence and a division sentence to match your picture.

1. 4 groups of 2 ●'s.
8 in all.

2. 8 in all.
2 groups of 4 ●'s.

3. 5 groups of 4 ●'s.
20 in all.

4. 20 in all.
4 groups of 5 ●'s.

Write two multiplication sentences and two division sentences for each group of numbers.

5. 5, 2, 10

6. 7, 4, 28

7. 3, 2, 6

8. 9, 5, 45

9. 7, 5, 35

10. 8, 3, 24

11. 9, 2, 18

12. 9, 4, 36

13. 9, 3, 27

14. 6, 4, 24

15. 8, 2, 16

16. 6, 5, 30

Using Multiplication to Divide

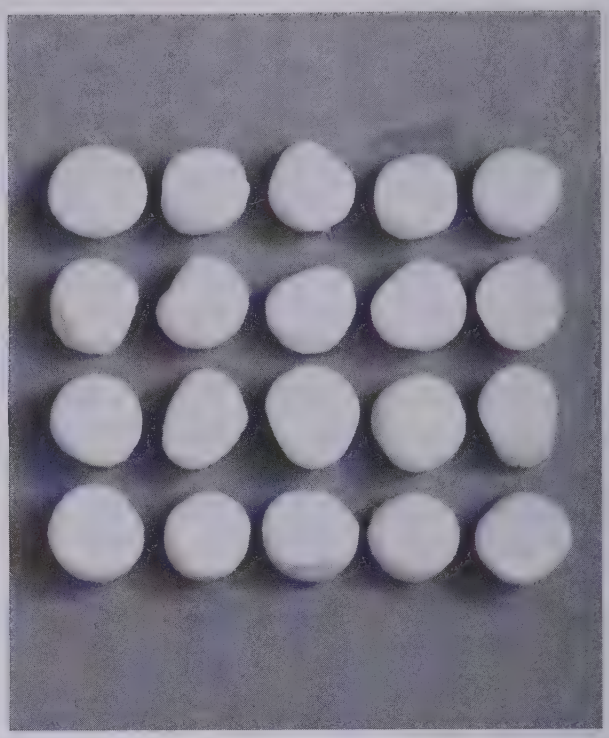
Multiplication facts are useful for finding quotients.

For $20 \div 4$

think $4 \times \square = 20$

$4 \times 5 = 20$

$20 \div 4 = 5$



Working Together

Complete.

1. For $12 \div 4$,

$4 \times \square = 12$

$12 \div 4 = \square$

2. For $18 \div 2$,

$2 \times \square = 18$

$18 \div 2 = \square$

3. For $21 \div 3$,

$3 \times \square = 21$

$21 \div 3 = \square$

What multiplication fact can be used to find each quotient?

4. $18 \div 3$ **5.** $12 \div 2$ **6.** $20 \div 5$

Give a multiplication fact that can be used for each division. Give the division sentence.

7. $14 \div 2$ **8.** $15 \div 3$ **9.** $10 \div 5$

Exercises

Write a multiplication fact that can be used for each division. Write the division sentence.

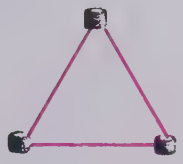
Example: For $6 \div 3$, write $3 \times 2 = 6$, $6 \div 3 = 2$

1. $9 \div 3$	**2.** $32 \div 4$	**3.** $45 \div 5$	**4.** $28 \div 4$
5. $10 \div 2$	**6.** $16 \div 2$	**7.** $27 \div 3$	**8.** $40 \div 5$
9. $30 \div 5$	**10.** $36 \div 4$	**11.** $12 \div 3$	**12.** $16 \div 4$

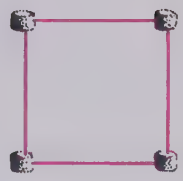
Divide to solve each problem.
Write the multiplication fact you use.

Molly made shapes with marshmallows and toothpicks.

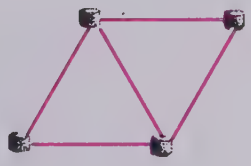
13. 24 toothpicks. How many of these did she make?



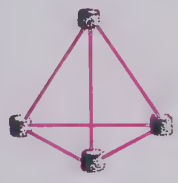
14. 24 toothpicks. How many of these did she make?



15. 35 toothpicks. How many of these did she make?

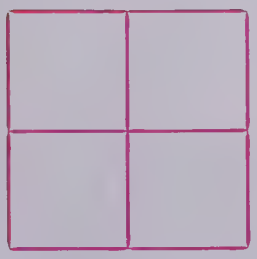


16. 30 toothpicks. How many of these did she make?

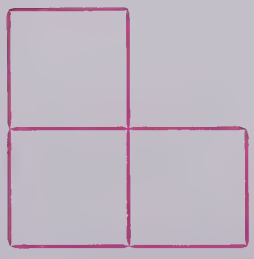


Place toothpicks as shown in each picture.

1. Move three toothpicks to make three squares.



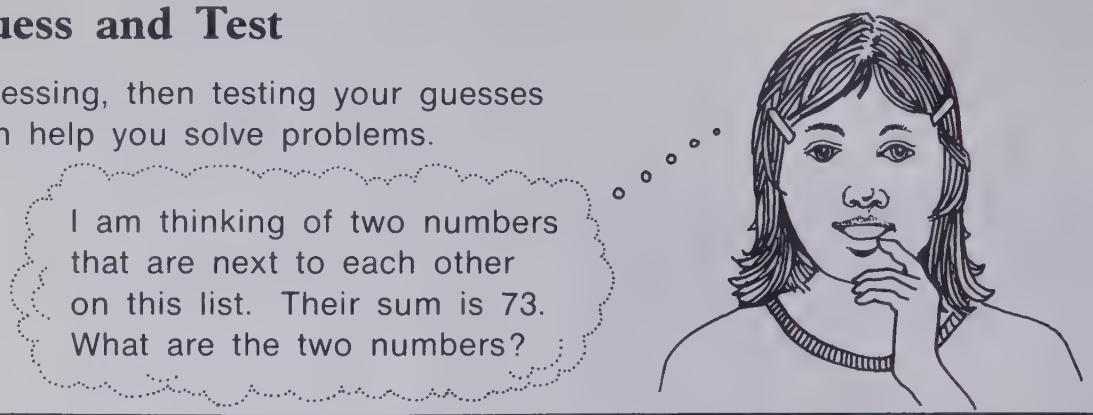
2. Move two toothpicks to make two squares.



try this

Guess and Test

Guessing, then testing your guesses can help you solve problems.



26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45

Guess 35 and 36

Test
$$\begin{array}{r} 35 \\ +\ 36 \\ \hline 71 \end{array}$$
Too low!

Guess 37 and 38

Test
$$\begin{array}{r} 37 \\ +\ 38 \\ \hline 75 \end{array}$$
Too high!

Guess 36 and 37

Test
$$\begin{array}{r} 36 \\ +\ 37 \\ \hline 73 \end{array}$$

The two numbers are 36 and 37.

Exercises

The answers for each question are on this list. Make guesses, then test your guesses until you solve each problem.

1 2 3 4 5 6 7 8 9

1. The sum of three numbers in a row on the list is 18. What are the three numbers?

2. The sum of three different numbers is 23. What are the three numbers?

3. The sum of two numbers is 14. Their difference is 4. What are the two numbers?

4. The product of two numbers is 24. Their sum is 11. What are the two numbers?

5. Bunny had some nickels and dimes. She used 7 of them to buy a notebook for 55¢. How many of each coin did she use?

6. Sharon bought some 5¢, 4¢, and 2¢ stamps. She paid 30¢ for 10 stamps. How many of each stamp did she buy?

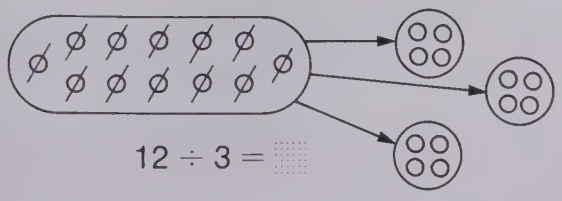
PROBLEM SOLVING

7. 3 kg in each small bag. 5 kg in each large bag. How many of each bag for 22 kg in all?

Checking Up

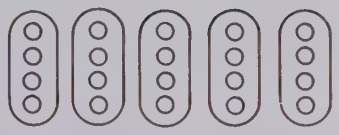
Complete the division sentence for each picture.

1.



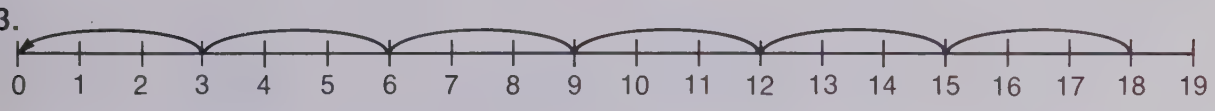
$12 \div 3 =$ ▒

2.



$20 \div 4 =$ ▒

3.



$18 \div 3 =$ ▒

Draw a picture and write the division sentence for each.

4. 6 beads shared equally by 3

5. 10 buttons in groups of 5

Mark a number line and write the division sentence for

6. $14 \div 2$

Complete the division sentence for this subtraction chain.

7.

$$\begin{array}{r} 15 \\ -\ 5 \\ \hline 10 \end{array} \quad \begin{array}{r} 10 \\ -\ 5 \\ \hline 5 \end{array} \quad \begin{array}{r} 5 \\ -\ 5 \\ \hline 0 \end{array}$$

$15 \div$ ▒ $=$ ▒

Use subtraction to find each quotient.

8. $15 \div 3$

9. $6 \div 2$

Write a multiplication sentence and a division sentence to match this picture.

10.

Write two multiplication sentences and two division sentences using the numbers

11. 2, 4, and 8.

Write a multiplication fact that can be used to find the quotient. Write the division sentence.

12. $12 \div 4$ **13.** $35 \div 5$ **14.** $36 \div 4$

Divide.

15. $30 \div 5$ **16.** $21 \div 3$ **17.** $32 \div 4$ **18.** $18 \div 2$

Write the division sentence and answer the question.

19. 32 legs. 4 legs for each table. How many tables?

20. 24 chairs in 3 equal rows. How many chairs in each row?

10 GEOMETRY AND MEASUREMENT

Similar Shapes

The pickle jars have the same shape. They are **similar.**

The vinegar bottles have different shapes. They are not similar.

Working Together

Find each of these on the shelves. Are they similar?

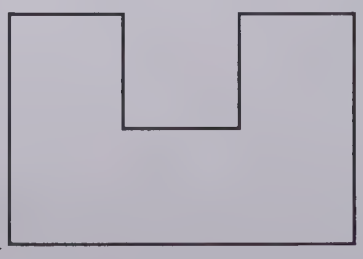
1. two jars of onion salt

2. three ketchup bottles

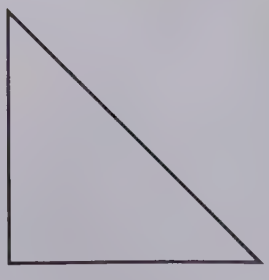
Draw a picture

3. similar to, but larger than this shape.

4. similar to, but smaller than this shape.



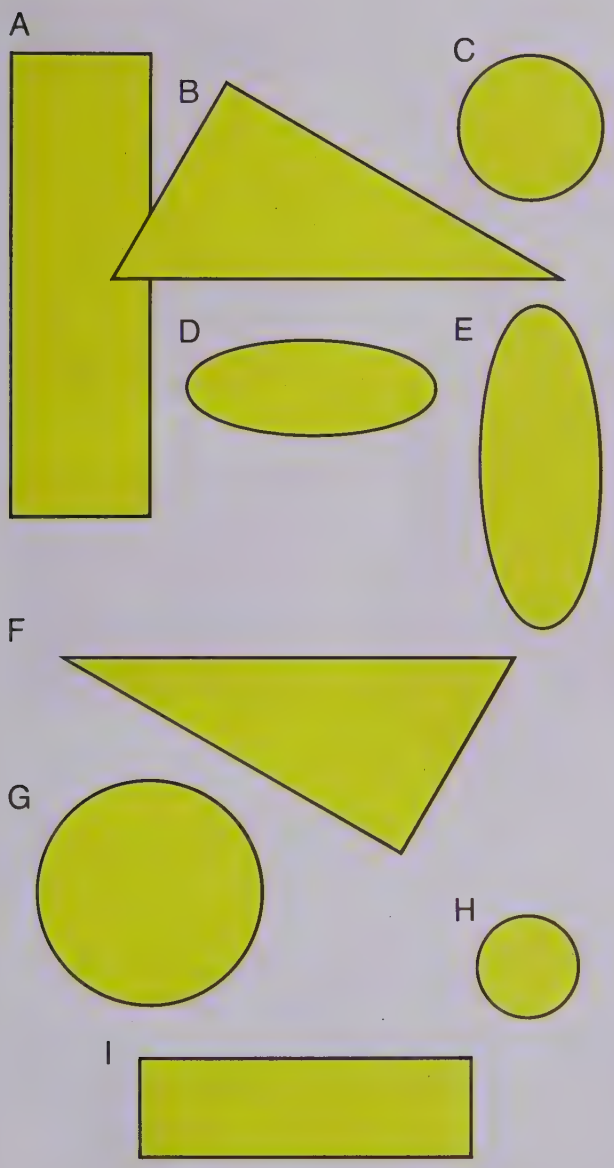
5. similar to, and the same size as this shape.



Exercises

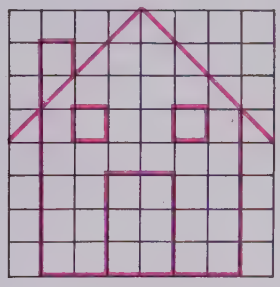
Nine shapes were cut out.

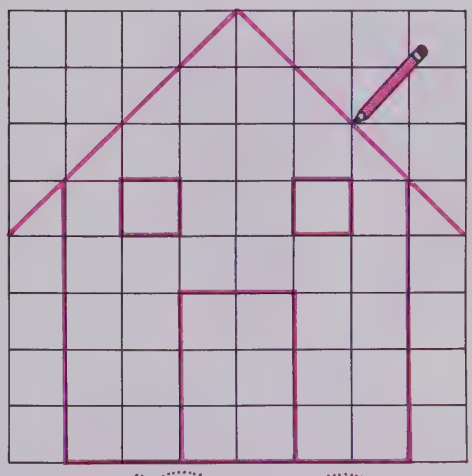
1. Name four pairs that are similar.
2. Name two shapes that are similar and the same size.
3. Name two shapes that are not similar.
4. Draw a picture larger than but similar to Shape B.



Use grid paper with large squares.

1. Copy square by square to make a house similar to each of these.





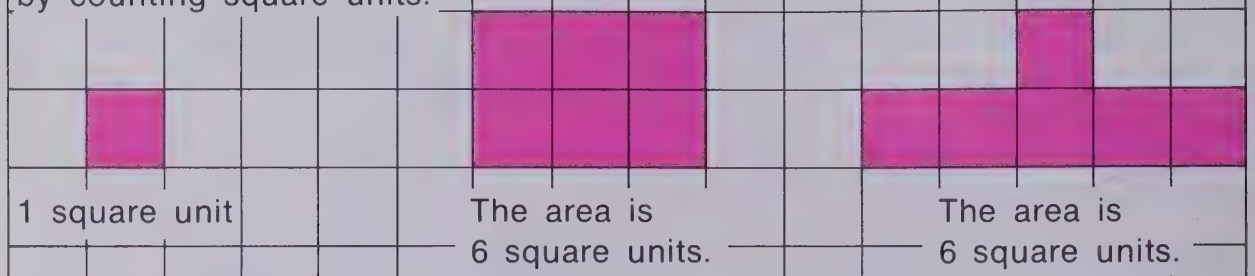
Using larger squares gives a similar but larger picture.

2. Draw a picture on grid paper. Have a friend copy the picture onto grid paper that has squares of a different size.

try this

Finding Area

You can find the **area** of a region by counting square units.



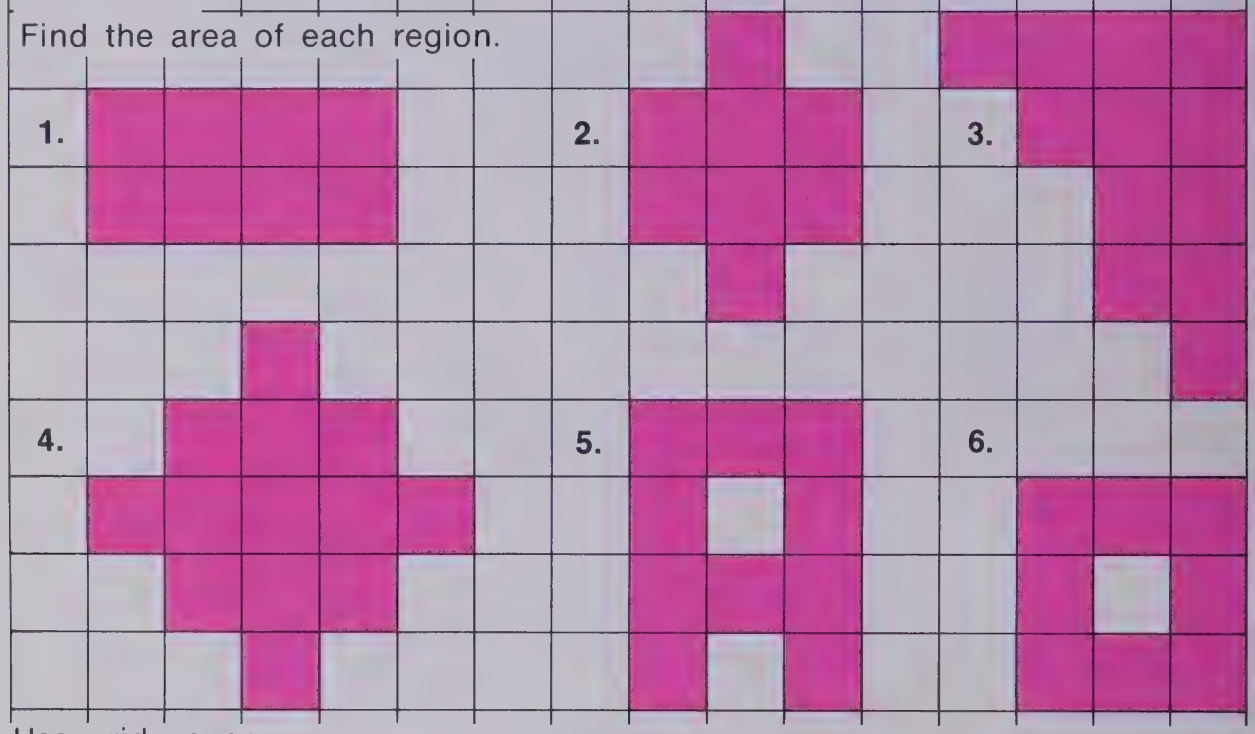
1 square unit

The area is 6 square units.

The area is 6 square units.

Exercises

Find the area of each region.



Use grid paper.
Draw regions with these areas.

7. 9 square units

8. 18 square units

9. 24 square units

Use grid paper. Draw

10. two different shapes that have equal areas.

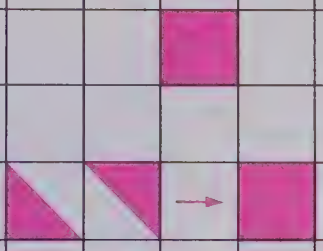
11. two similar shapes that have different areas.

12. two different rectangles with 12 square units of area for each.

*__13.__ a triangle with 2 square units of area.

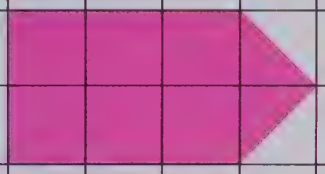
Area in Square Centimetres

The area of this unit is 1 **square centimetre.**



Two halves of a square centimetre make 1 square centimetre.

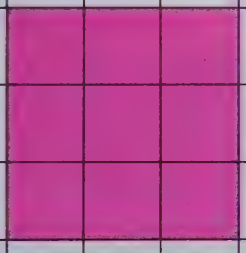
The area of this region is 7 square centimetres.



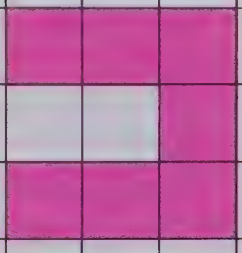
Exercises

Find the area of each region in square centimetres.

1.



2.

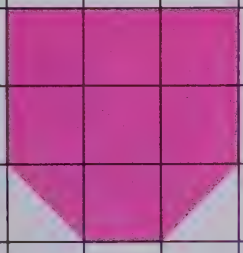


3.

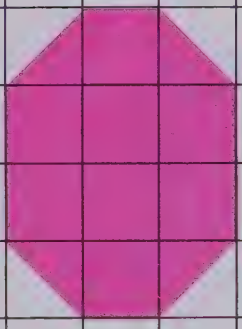
4.

Which of these regions have the same area?

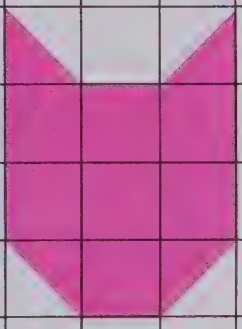
5. a.



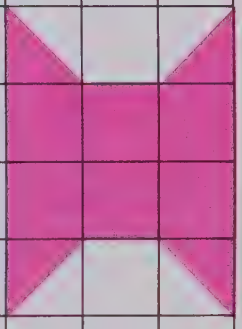
b.



c.



d.



Use square centimetre grid paper.
Draw regions with these areas.

6. 4 cm^2 **7.** 12 cm^2 **8.** 17 cm^2 **9.** 32 cm^2

Draw

*__10.__ a triangle with area 1 cm^2.

*__11.__ a square with area 2 cm^2.

Volume

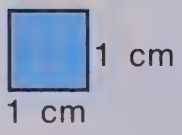
Length is measured
with a unit like this

1 centimetre

1 cm

Area is measured
with a unit like this

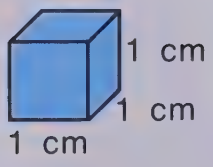
1 square centimetre



$1\ cm^2$

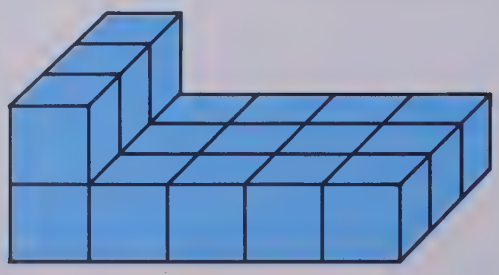
Volume is measured
with a unit like this

1 **cubic centimetre**



$1\ cm^3$

You can find volume
by counting cubic centimetres.

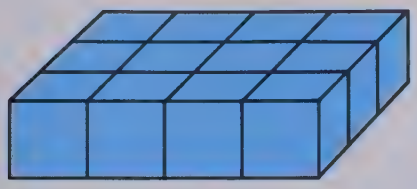


$18\ cm^3$

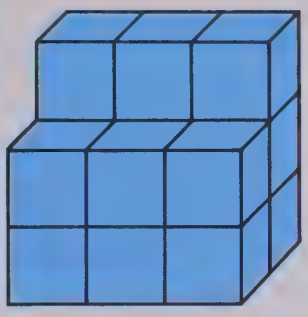
Working Together

Find the volume in cubic centimetres.

1.



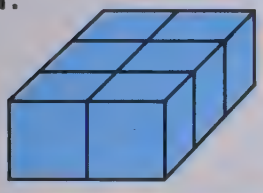
2.



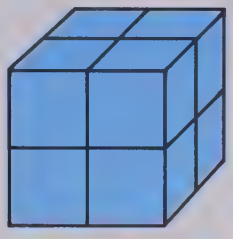
Exercises

Find the volume in cubic centimetres.

1.



2.



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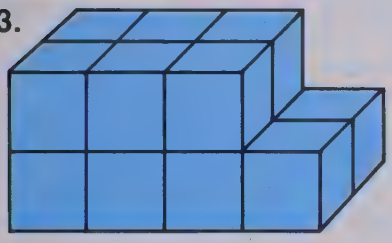

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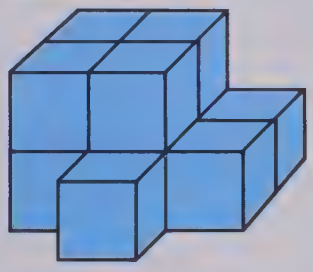
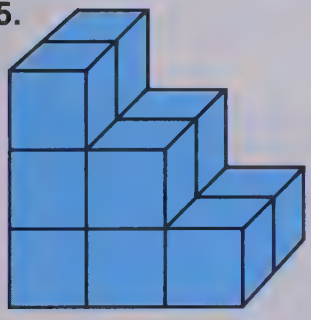


5.



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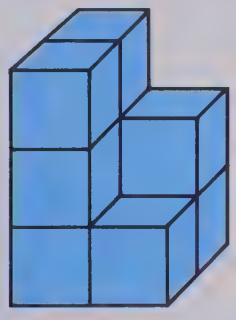
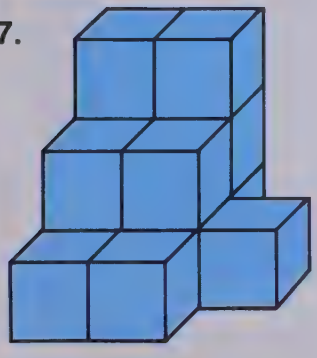
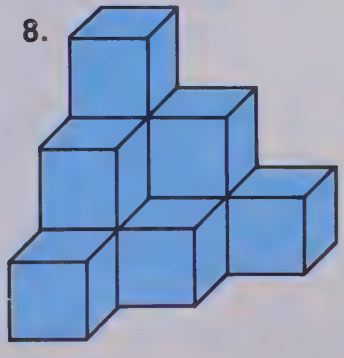


7.



8.



Multiply.

1. 3×2	**2.** 2×5
3. 4×2	**4.** 2×2
5. 5×1	**6.** 3×4
7. 6×4	**8.** 7×0
9. 3×5	**10.** 2×3
11. 5×2	**12.** 7×2
13. 0×3	**14.** 6×3
15. 3×1	**16.** 5×4
17. 5×5	**18.** 4×3
19. 3×3	**20.** 6×2
21. 4×4	**22.** 8×4
23. 1×4	**24.** 8×5
25. 9×2	**26.** 7×5
27. 4×5	**28.** 8×2

Divide.

29. $8 \div 4$	**30.** $6 \div 2$
31. $10 \div 5$	**32.** $15 \div 3$
33. $3 \div 3$	**34.** $45 \div 5$
35. $24 \div 4$	**36.** $5 \div 1$
37. $6 \div 3$	**38.** $21 \div 3$
39. $32 \div 4$	**40.** $12 \div 2$
41. $16 \div 4$	**42.** $8 \div 1$
43. $12 \div 3$	**44.** $4 \div 4$
45. $12 \div 4$	**46.** $30 \div 5$
47. $36 \div 4$	**48.** $35 \div 5$
49. $15 \div 5$	**50.** $10 \div 2$
51. $24 \div 3$	**52.** $14 \div 2$
53. $25 \div 5$	
54. $27 \div 3$	
55. $16 \div 2$	
56. $18 \div 3$	

KEEPING SHARP

Practice

Copy the chart. Use a check to show whether you would measure length, area, or volume.

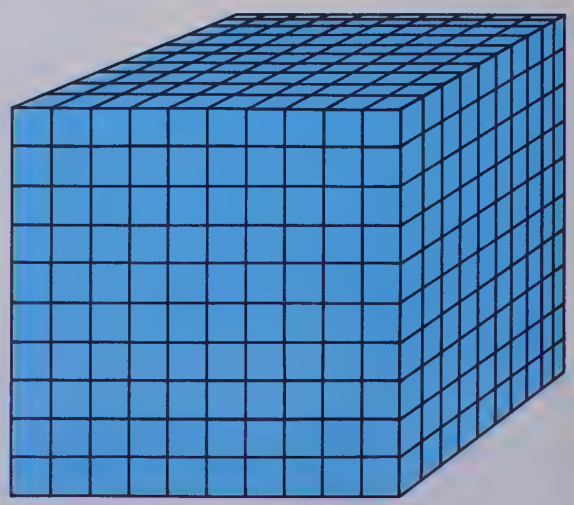
1. How tall are you?
2. How big is the blanket?
3. How much will the box hold?
4. Will the blocks fit in the bag?
5. Will the dictionary fit between the other books on the shelf?
6. How much wall is there to paint?
7. Can you walk through the door of the playhouse without bumping your head?
8. Is the closet large enough to hold all the cartons?
9. How much of the floor is covered by the rug?

	Length	Area	Volume
1.	✓		
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			

try this

Each little block is 1 cm^3.

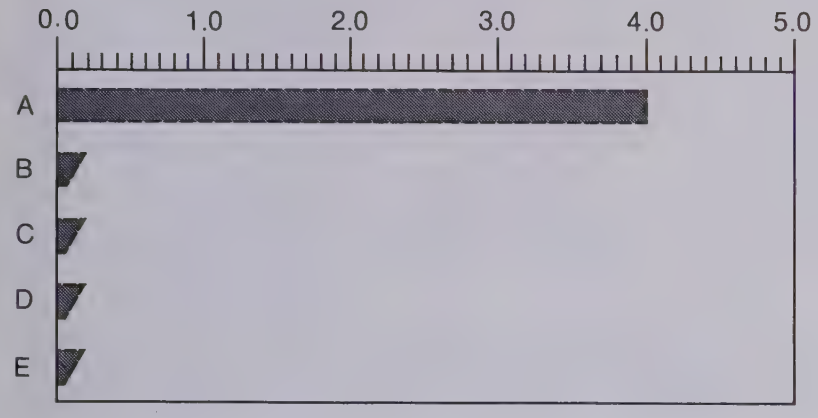
1. What is the length of one edge of the large block?
2. What is the area of one face of the large block?
3. What is the volume of the large block?



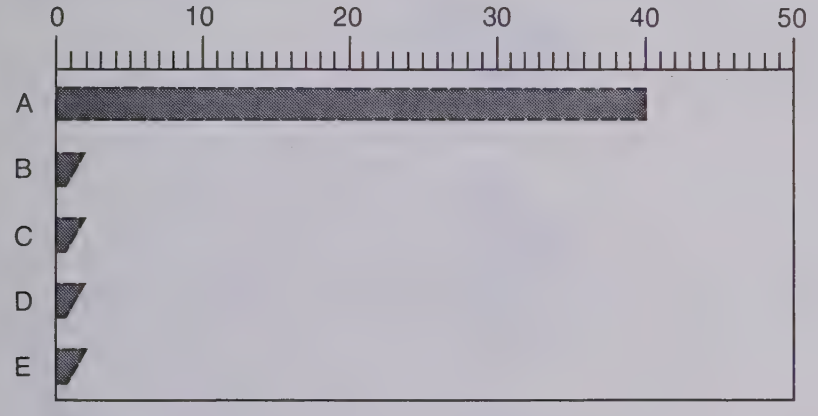
Using Graphs to Show Different Amounts

Graphs can be used to show amounts of any size.

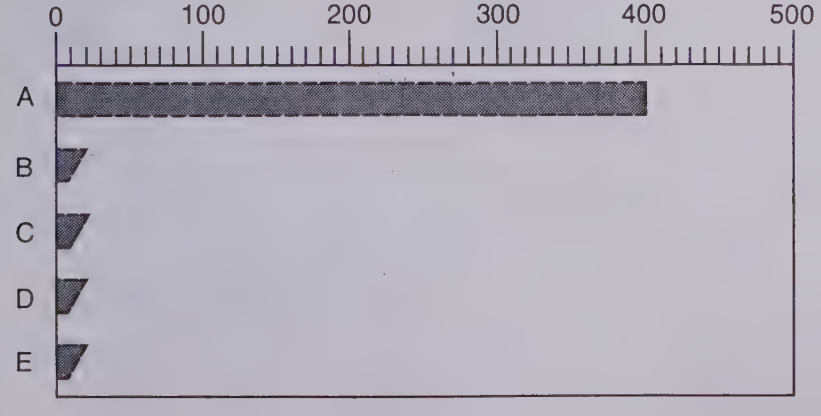
A bar graph drawn here would show amounts from 0.0 to 5.0.



A bar graph drawn here would show amounts from 0 to 50.



A bar graph drawn here would show amounts from 0 to 500.



Exercises

Use tracing paper and complete the bar graphs.

1. On the first graph, show

4.0 for A
3.0 for B
2.0 for C
1.0 for D
3.5 for E

2. On the second graph, show

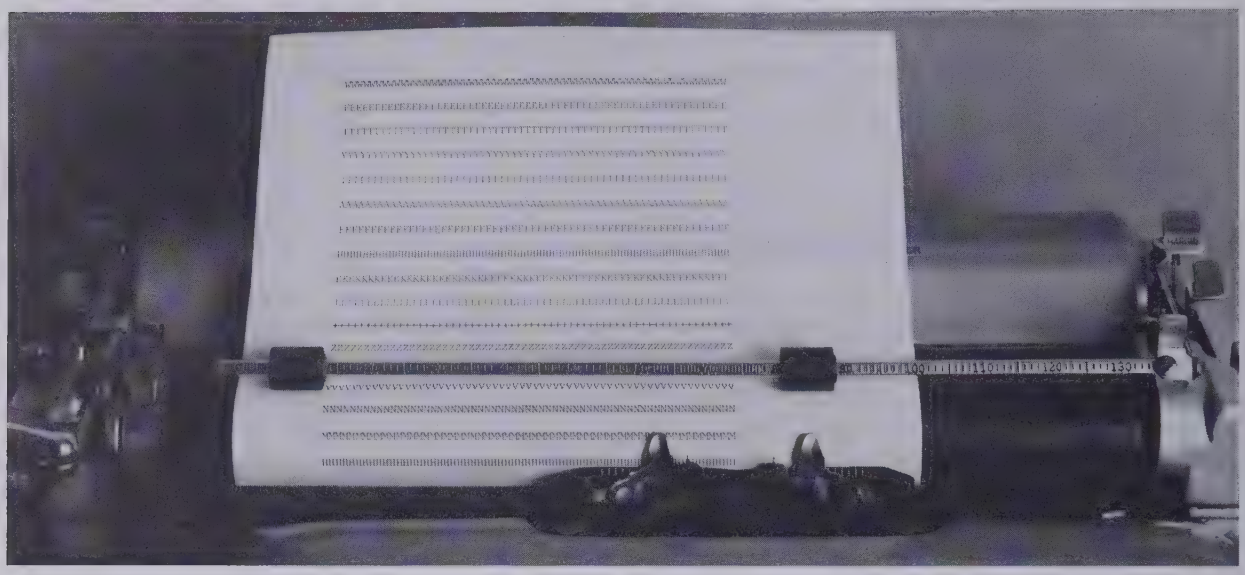
40 for A
46 for B
20 for C
12 for D
35 for E

3. On the third graph, show

400 for A
270 for B
200 for C
80 for D
350 for E

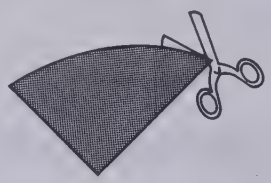
Patterns Using Slides

One shape can be used again and again to make a pattern.



Working Together

Follow these steps to make a pattern.



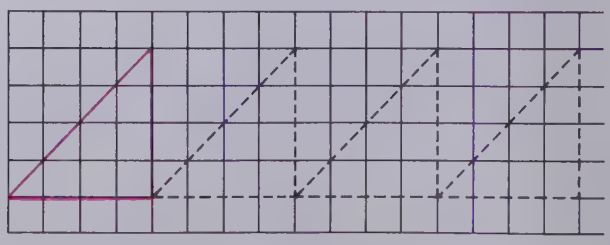
1. A. Cut a shape out of heavy paper or cardboard.

B. Place the shape along a line segment and trace around the shape.

C. Slide the shape along the line segment and trace again and again.

2. Try it again and make another pattern.

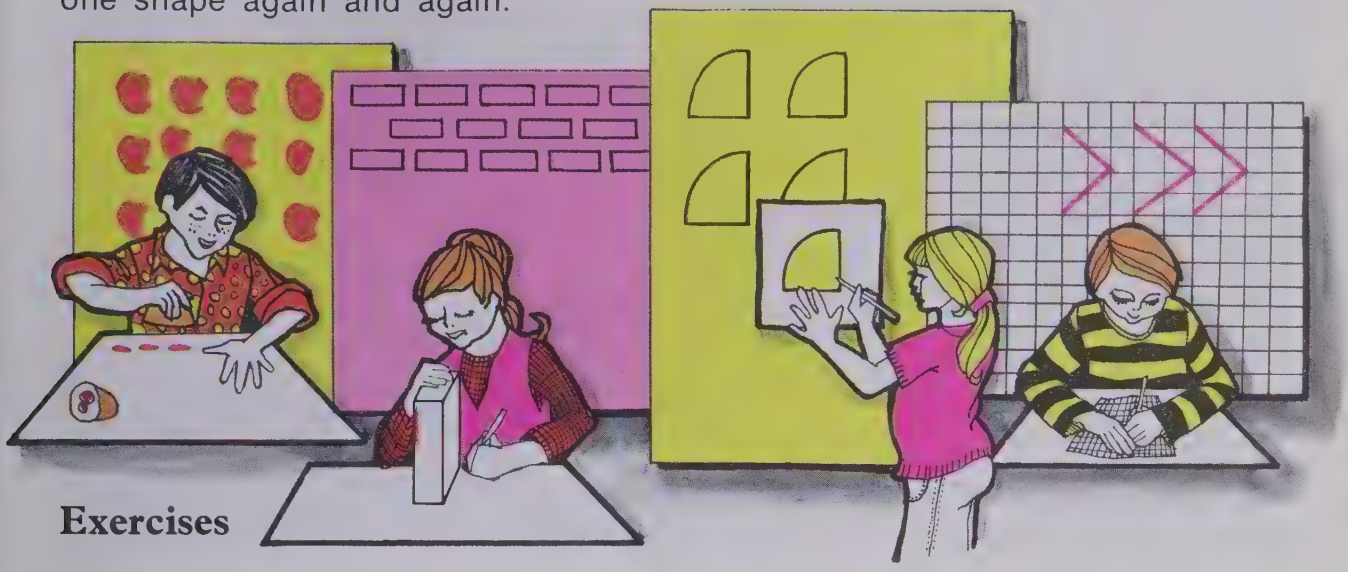
Use grid paper or geopaper.



3. Copy the red shape.

4. Copy it four more times to make a pattern across.

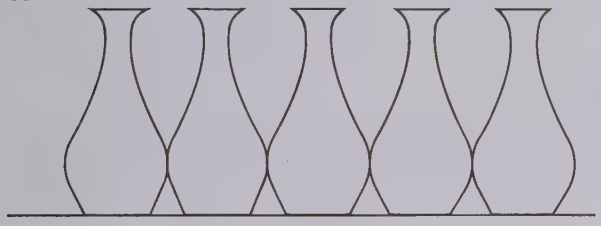
Here are some ways to make patterns by using one shape again and again.



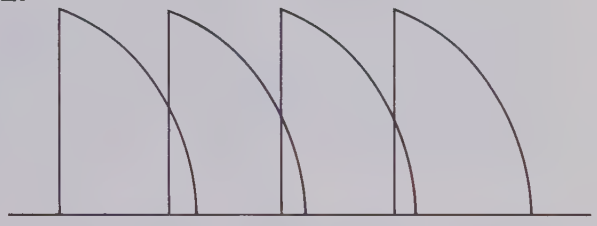
Exercises

Copy the one shape that was used to make each pattern.

1.



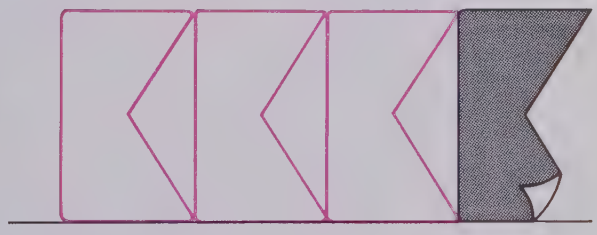
2.



Trace four times around a cutout to make a pattern that looks like this.

3.

4.

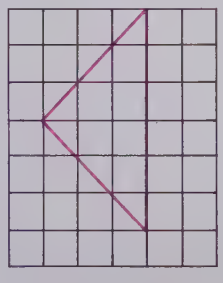


Use grid paper or geopaper.

5. Copy the red shape.

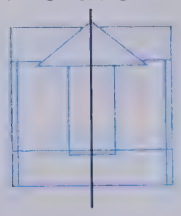
6. Copy it four more times to make a pattern across.

7. Copy it four more times to make a pattern up and down.



Line Symmetry

A line like this



shows there are two parts of the picture that are alike.

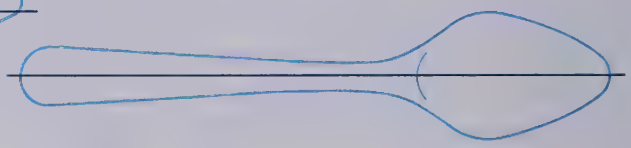
The picture has **line symmetry.**
The line is a **line of symmetry.**

Working Together

In each picture, are the two parts alike?

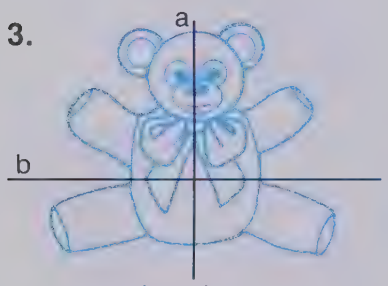
1.

2.



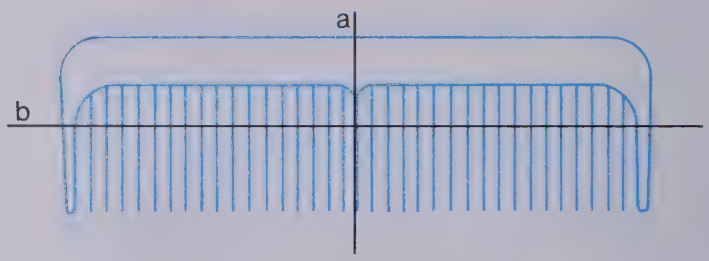
Which line is a line of symmetry?

3.



Trace this picture.
Show a line of symmetry.

4.



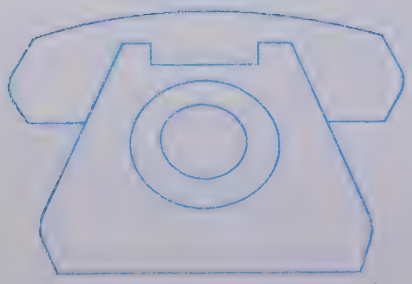
A picture of each of these can have line symmetry.
Draw a picture of each.
Show a line of symmetry.

6. a flower pot

7. a lamp

8. a pencil

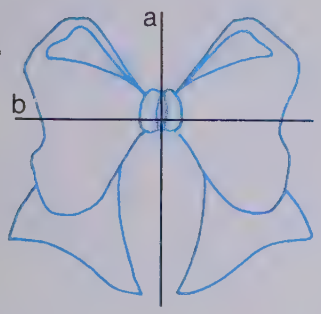
5.



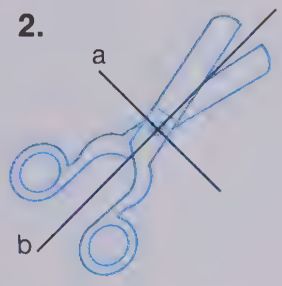
Exercises

Which line is a line of symmetry?

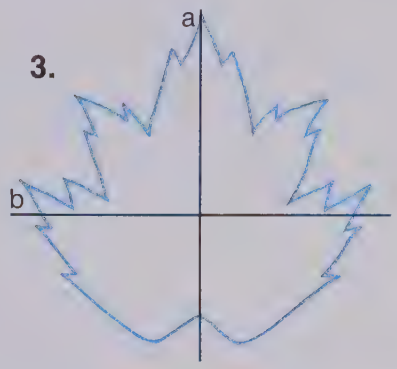
1.



2.



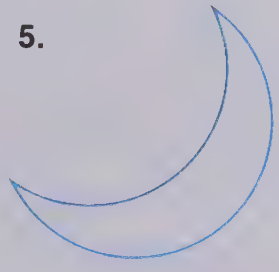
3.



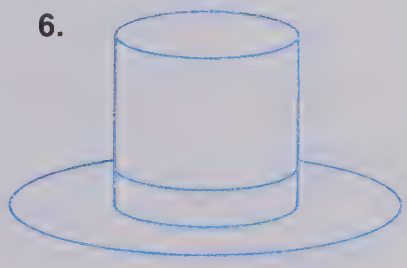
Trace each picture. Show a line of symmetry.

4.

5.



6.



A picture of each of these can have line symmetry. Draw a picture of each. Show a line of symmetry.

7. a face
8. a football
9. a flower
10. a tree
11. a snowflake
12. a tower

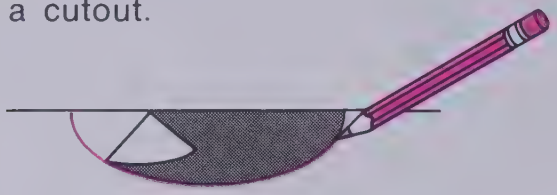
For each group, list the members that have line symmetry. Draw the lines of symmetry.

13. the letters of the alphabet, A to Z
14. the numerals, 0 to 9

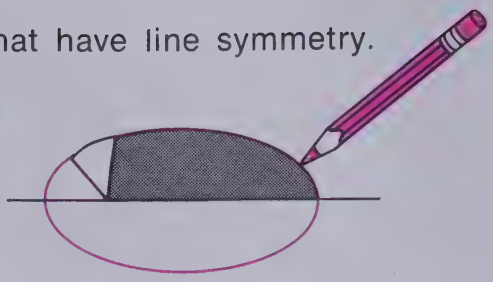
Making Symmetric Shapes

Here are some ways to make shapes that have line symmetry.

Use a cutout.

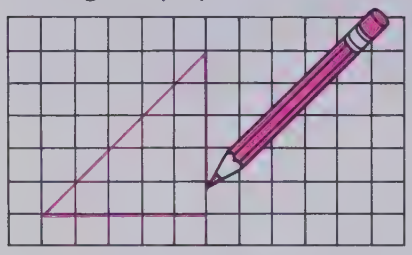


Trace around the cutout.

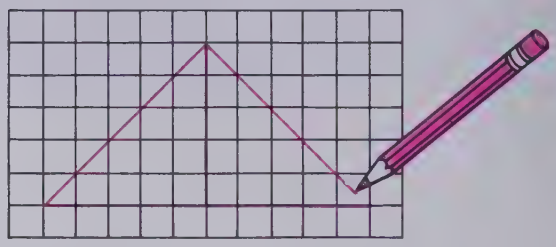


Flip it along one edge and trace around again.

Use grid paper.

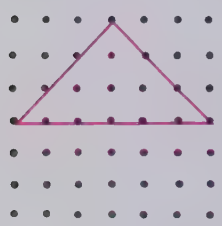


Draw one half of a shape.

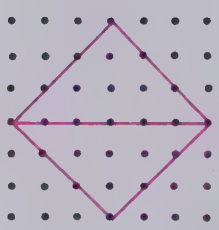


Draw the other half to match the first half square by square.

Use a geoboard.

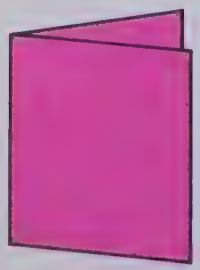


Make one half of a shape.

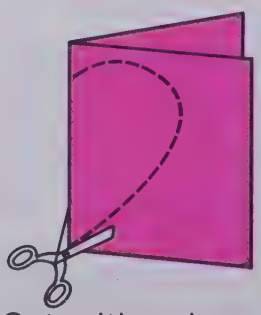


Make the other half to match the first half peg by peg.

Fold and cut.



Fold a piece of paper in half one or more times.



Cut with scissors.

Unfold.

Exercises

Use cutouts:

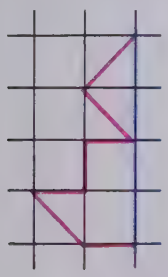
Trace around each cutout. Then flip along one edge and trace around again. Use another color to show the line of symmetry.

1. Use a triangle.
2. Use a rectangle.
3. Use a pentagon.
4. Use an octagon.

Use grid paper or a geoboard:

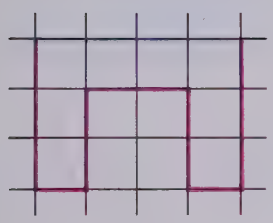
Each picture shows half of a symmetric shape. Copy it and complete the other half of the shape.

5.

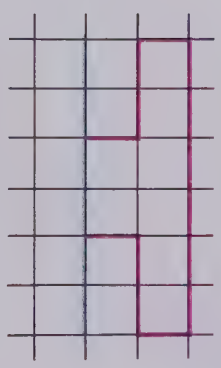


6.

7.



8.



Fold paper:

9. Cut out a valentine heart.

*10. Find a way to fold and cut to make a snowflake.

Add.

1.	47 + 21	**2.**	425 + 62	**3.**	218 + 140
4.	36 + 25	**5.**	609 + 87	**6.**	158 + 316
7.	53 + 53	**8.**	272 + 255	**9.**	550 + 380
10.	397 + 147	**11.**	179 + 189	**12.**	274 + 336
13.	3.2 + 3.1	**14.**	6.4 + 2.7	**15.**	1.8 + 3.5

Multiply.

16.	4×2	**17.**	0×5	**18.**	3×3
19.	5×4	**20.**	9×3	**21.**	7×2
22.	7×4	**23.**	8×5	**24.**	9×4

Solve.

25. There are 59 color photos and 114 black and white photos. How many photos are there?

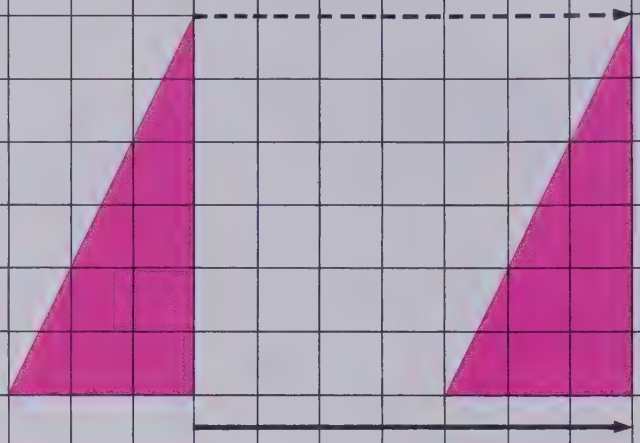
26. 178 post cards came from Alberta. 196 came from other provinces. How many post cards are there?

27. Each bicycle has 2 tires. There are 6 bicycles. How many tires are there?

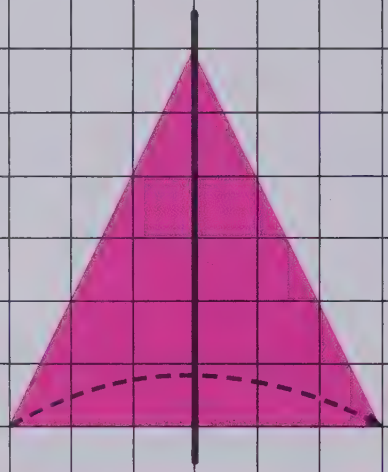
28. A package has 3 flash cubes. There are 5 packages. How many flash cubes are there?

KEEPING SHARP

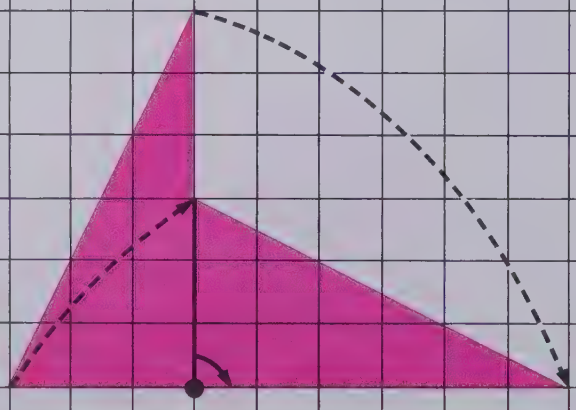
Slides, Flips, and Turns



Slide.



Flip.



Turn.

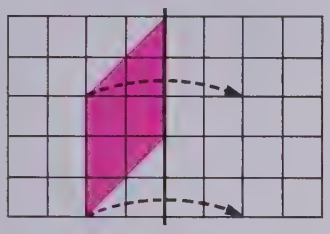
Working Together

Use grid paper.

1. Slide this shape four units to the right.

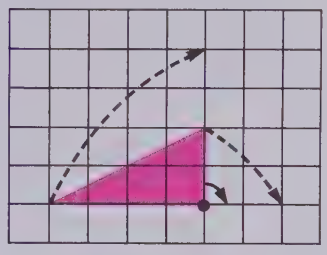
Draw your result.

2. Flip this shape about the black line.



Draw your result.

3. Turn this shape about the black point.

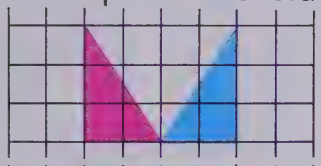


Draw your result.

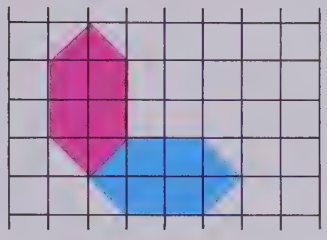
Exercises

Do you slide, flip, or turn to make the red shape fit the blue shape?

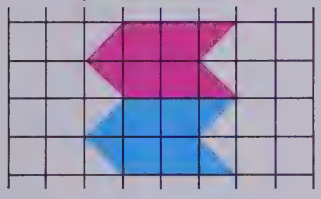
1.



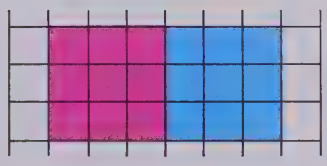
2.



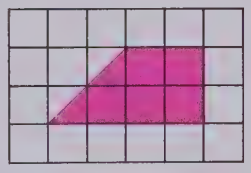
3.



4.



Use grid paper. Copy the red shape for each exercise and then



5. slide five units to the right.

6. slide three units to the left.

7. slide two units up.

8. slide one unit down.

9. flip it about one of its sides.

10. turn it about one of its corners.

Draw a shape on grid paper.

*__11.__ Make up a slide, flip, or turn problem for a friend.

Positions and Pairs of Numbers

Dorothy's mittens are in box (4, 2).

To find Dorothy's mittens, count over 4 and up 2.

Always count over first, then up, to match a box with a pair of numbers.

Working Together

Whose hat is in

1. box (2, 4)?
2. box (3, 2)?
3. box (6, 5)?

What pair of numbers tells you where to find each of these?

4.

5.

Exercises

What pair of numbers tells you where to find each of these?

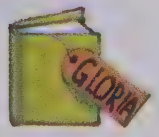
1.

2.

3.

4.

5.

6. 

7.

8.

Whose things are in

9. box (6, 2)? **10.** box (3, 3)?
11. box (2, 5)? **12.** box (4, 1)?
13. box (5, 6)? **14.** box (3, 6)?
15. box (4, 5)? **16.** box (5, 3)?

What are the number pairs for

17. the empty boxes in the bottom row?
18. the empty boxes in the first column?
19. all the boxes holding Tom's things?

The numbers in the pair (3, 3) add to 6.

20. List all the pairs whose numbers add to 6.
21. Name the children whose things are in those boxes.

Subtract.

1.	67 − 23	**2.**	179 − 42	**3.**	983 − 741
4.	532 − 6	**5.**	293 − 34	**6.**	777 − 418
7.	547 − 91	**8.**	619 − 483	**9.**	908 − 651
10.	811 − 639	**11.**	962 − 493	**12.**	732 − 85
13.	101 − 67	**14.**	600 − 356	**15.**	500 − 218

Divide.

16.	$2 \div 2$	**17.**	$6 \div 3$	**18.**	$4 \div 1$
19.	$25 \div 5$	**20.**	$12 \div 4$	**21.**	$18 \div 3$
22.	$32 \div 4$	**23.**	$21 \div 3$	**24.**	$45 \div 5$

Solve.

25. There are 272 bean seeds and 158 pumpkin seeds. How many fewer pumpkin seeds than bean seeds are there?
26. There are 375 pieces to the puzzle. 193 pieces have been put together. How many pieces are left to be put together?
27. There are 16 seeds to plant. Each pot gets 2 seeds. How many pots are needed?
28. 3 players share 21 playing cards equally. How many does each player get?

KEEPING SHARP

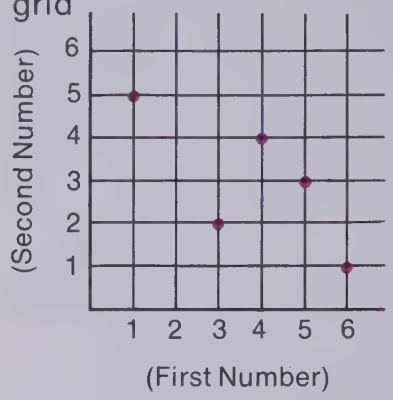
Positions on a Grid

Elsa and David played this game.

Each drew a grid.
They numbered the lines
and placed five points.

Then each guessed five pairs
of numbers. Whoever guessed
more of the other player's
points won the game.

Elsa's grid



David's guesses

(5,1) (1,2)
(5,5) (6,1)✓
(3,5)

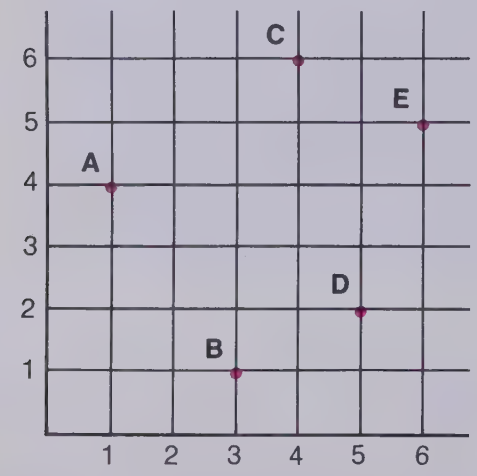
David guessed
one of Elsa's points.

Count over for the first number, count up for the second number.

Working Together

Count over, then up to match each point with a number pair.

1.



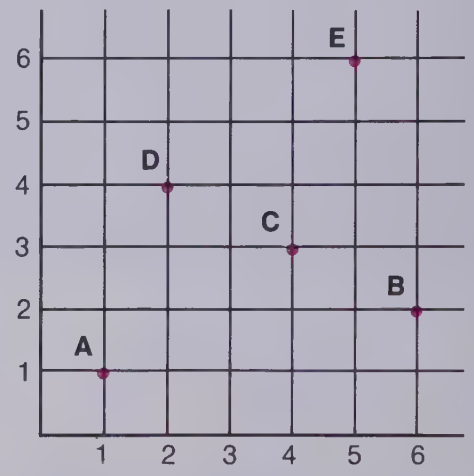
Draw a grid. Number the lines. Place these points.

2. (5,1) **3.** (4,8) **4.** (7,3)

Exercises

Write the number pair that matches each point.

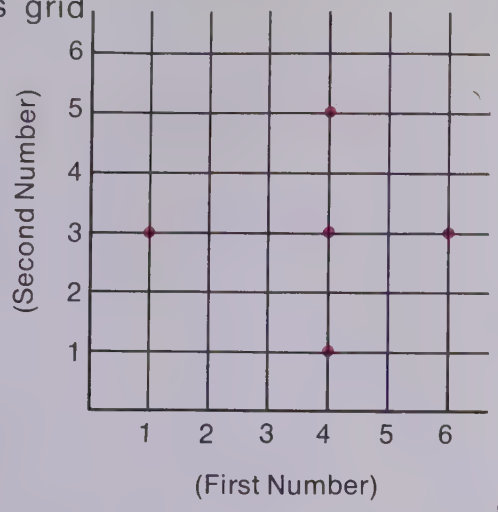
1.



Draw a grid. Number the lines. Place these points.

2. (4, 2) **3.** (3, 6) **4.** (6, 1)
5. (5, 7) **6.** (2, 8) **7.** (8, 2)
8. (1, 6) **9.** (9, 5) **10.** (7,10)

David's grid



Elsa's guesses

(2,3) (3,4)
(4,5) (5,4)
(6,3)

How many of David's points did Elsa guess?

Who won the game?

Draw a grid. Number the lines. Place the four points. Ring the point not in line with the others.

11.

(2, 1)
(3, 2)
(4, 5)
(7, 6)

12.

(3, 3)
(3, 9)
(6, 6)
(8, 4)

Want to know a good way to send a message? Draw a grid. Number the lines. Then draw point to point to find a way.

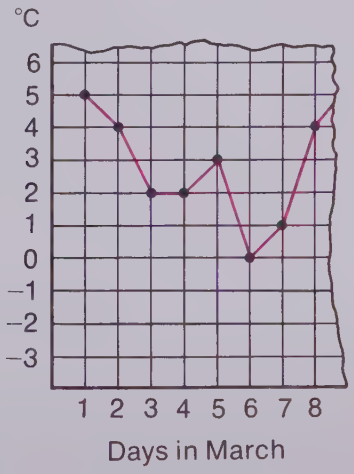
13. Draw (2, 2) → (8, 2) → (2, 6) → (8, 6) → (5, 9) → (2, 6) → (2, 2) → (8, 6) → (8, 2)

Bobby kept track of the temperature outside when he awoke each morning in March.

MARCH						
	1 5°C	2 4°C	3 2°C	4 2°C	5 3°C	6 0°C
7 1°C	8 4°C	9 5°C	10 3°C	11 1°C	12 -2°C	13 -3°C
14 -3°C	15 -1°C	16 0°C	17 5°C	18 3°C	19 6°C	20 5°C
21 6°C	22 6°C	23 8°C	24 10°C	25 9°C	26 3°C	27 4°C
28 2°C	29 4°C	30 6°C	31 7°C			

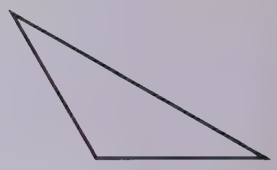
He made a **line graph** to show the temperatures.

14. Complete the line graph.

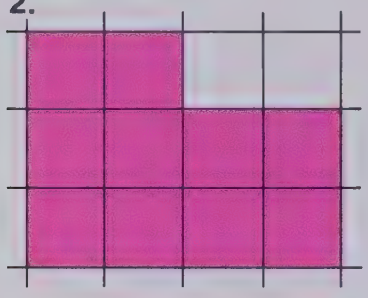


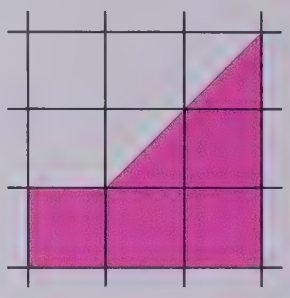
Checking Up

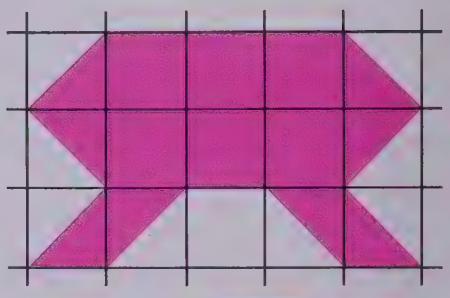
Find the two pictures that are similar.

1. **a.** **b.** **c.** **d.** 

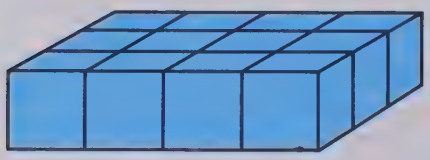
Find the area of each region in square centimetres (cm^2).

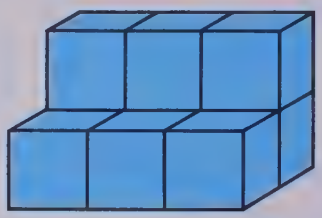
2. 

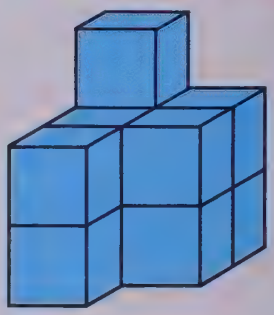
3. 

4. 

Find each volume in cubic centimetres (cm^3).

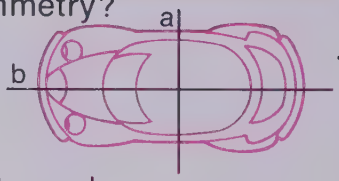
5. 

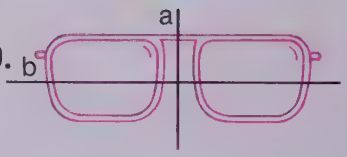
6. 

7. 

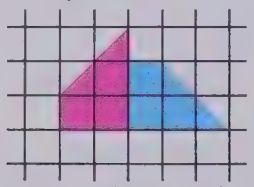
Which line is a line of symmetry?

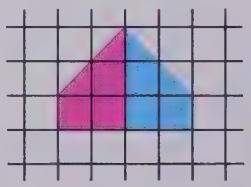
8.

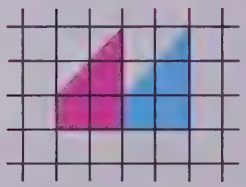
9. 

10. 

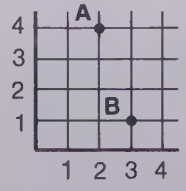
Do you slide, flip, or turn to make the red shape fit the blue shape?

11. 

12. 

13. 

Write the number pair that matches each point.

14. 

Draw a grid. Number the lines. Place these points.

15. (1, 3)

16. (5, 6)

Checking Skills

Add.

1.	34 + 42	**2.**	234 + 14	**3.**	712 + 215
4.	537 + 56	**5.**	324 + 638	**6.**	259 + 633
7.	391 + 12	**8.**	385 + 374	**9.**	131 + 485
10.	286 + 217	**11.**	185 + 389	**12.**	396 + 289
13.	1.5 + 0.2	**14.**	0.5 + 7.6	**15.**	2.8 + 4.2

Subtract.

1.	176 − 14	**2.**	536 − 402	**3.**	789 − 510
4.	52 − 36	**5.**	567 − 18	**6.**	880 − 237
7.	455 − 72	**8.**	966 − 490	**9.**	233 − 181
10.	378 − 179	**11.**	612 − 247	**12.**	451 − 297
13.	504 − 26	**14.**	300 − 65	**15.**	800 − 441

Multiply.

1.	1×5	**2.**	2×4
3.	0×2	**4.**	3×3
5.	2×3	**6.**	5×2
7.	4×3	**8.**	3×5
9.	8×2	**10.**	5×4
11.	6×3	**12.**	9×2
13.	7×5	**14.**	9×3
15.	8×4	**16.**	7×3
17.	6×5	**18.**	9×5
19.	7×4	**20.**	8×5
21.	5×5	**22.**	4×4
23.	8×3	**24.**	7×1
25.	9×4	**26.**	6×5

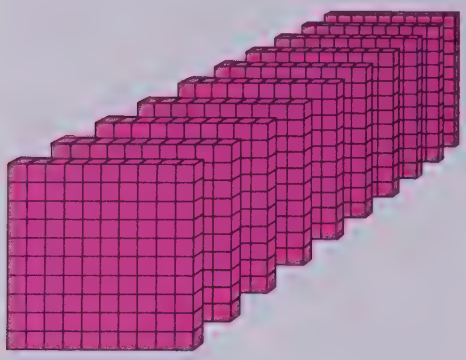
Divide.

1.	$4 \div 2$	**2.**	$2 \div 1$
3.	$4 \div 4$	**4.**	$6 \div 2$
5.	$3 \div 3$	**6.**	$20 \div 5$
7.	$10 \div 5$	**8.**	$12 \div 2$
9.	$8 \div 2$	**10.**	$18 \div 2$
11.	$14 \div 2$	**12.**	$24 \div 4$
13.	$28 \div 4$	**14.**	$25 \div 5$
15.	$40 \div 5$	**16.**	$24 \div 3$
17.	$36 \div 4$	**18.**	$45 \div 5$
19.	$15 \div 3$	**20.**	$32 \div 4$
21.	$30 \div 5$	**22.**	$16 \div 2$
23.	$20 \div 4$	**24.**	$21 \div 3$
25.	$18 \div 3$	**26.**	$12 \div 4$

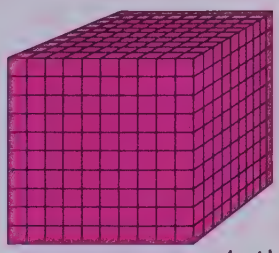
11 NUMERATION

Numbers to 9999

Ten hundreds are equal to **one thousand.**



10 hundreds



1 thousand

One thousand can be shown like this 1000

Working Together

Continue this table to nine thousand.

1.

1000	one thousand
2000	two thousand
3000	three thousand

Write the numerals.

2. 6 thousands 2 hundreds 3 tens 7 ones

3. 2 thousands 6 hundreds 5 tens

4. 5 thousands 4 tens

For the numeral 3409, tell the number of

5. thousands. **6.** hundreds. **7.** tens. **8.** ones.

Write the numerals.

9. seven thousand two hundred forty-six

10. four thousand thirty

11. five thousand eighty-three

12. six thousand two

Write the words.

13. 8335 **14.** 1900 **15.** 3612 **16.** 2073

This shows two thousand one hundred thirty-seven.

2 thousands | 1 hundred | 3 tens | 7 ones

Two thousand one hundred thirty-seven can be shown like this **2137**

Exercises

Use for thousands, for hundreds,

for tens, and for ones.

Draw pictures to show each of these.

1. 3265 **2.** 1702 **3.** 2030 **4.** 4096 **5.** 1600

Write the numerals.

6. seven thousand four hundred eleven

7. five thousand five

8. three thousand three hundred forty

9. six thousand eighty

Write the words.

10. 2312 **11.** 4100 **12.** 8888 **13.** 9052 **14.** 5070

Long distances are measured in **kilometres.**
A kilometre is equal to 1000 metres.
Copy and complete this table.

15.

kilometres	1	2	?	?	5	6
metres	1000	?	3000	4000	?	?

Expanded Form

Both flags show
four thousand five hundred thirty-eight.

Working Together

Show each number in expanded form.

Example:

$4538 = 4000 + 500 + 30 + 8$

1. 7463 **2.** 3580
3. 8307 **4.** 6060

Show each number in standard form.

5. $4000 + 900 + 10 + 2$
6. $1000 + 50 + 4$
7. $9000 + 200$
8. $2000 + 4$
9. $700 + 10 + 1$

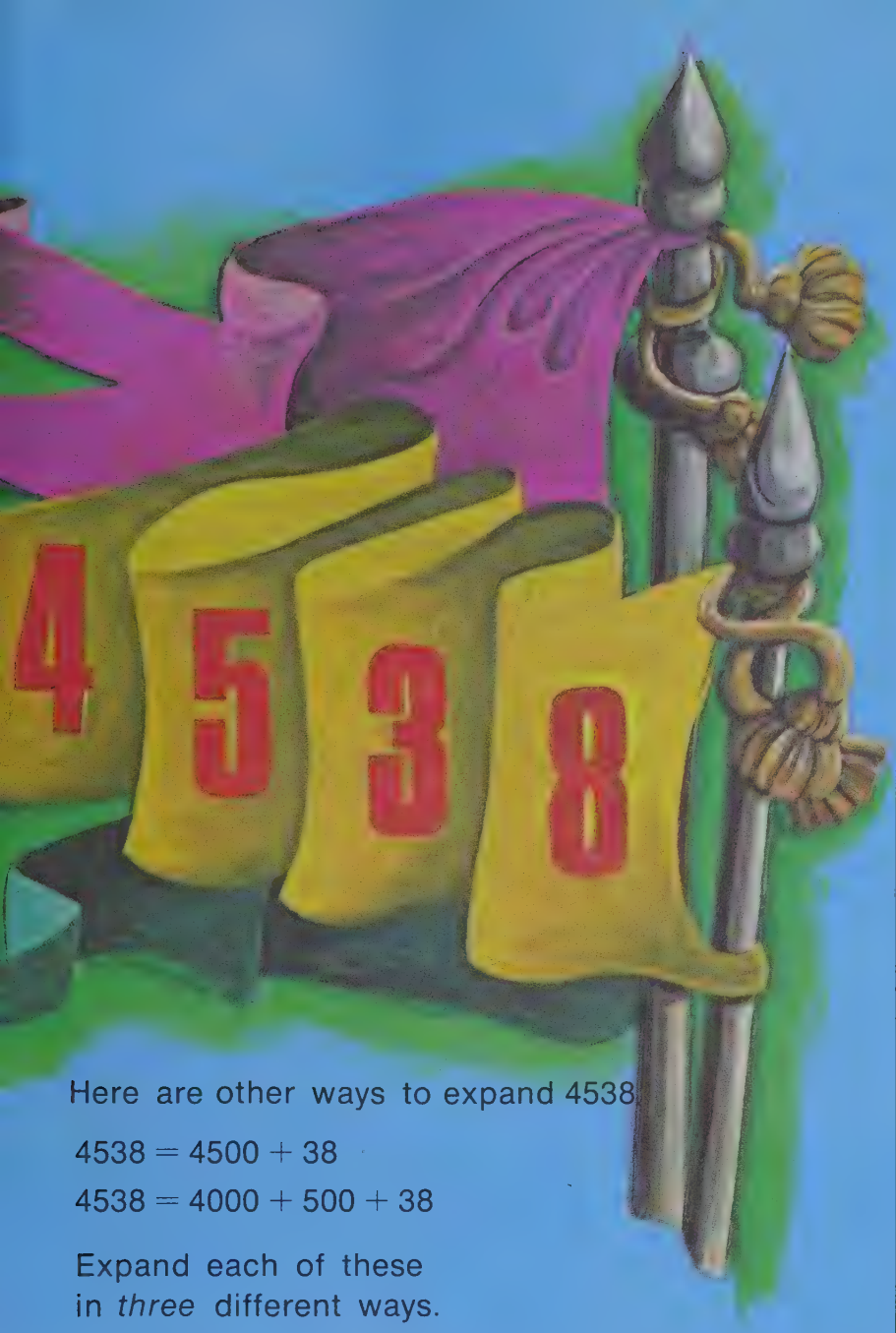
Exercises

Write each number in expanded form.

1. 4148 **2.** 6920 **3.** 328
4. 8700 **5.** 3017 **6.** 9040
7. 864 **8.** 1005 **9.** 5802

Write each number in standard form.

10. $7000 + 400 + 50$
11. $4000 + 800 + 4$
12. $1000 + 90$
13. $500 + 60 + 3$
14. $6000 + 300 + 50 + 8$
15. $3000 + 200$
16. $2000 + 80 + 1$



Here are other ways to expand 4538.

$4538 = 4500 + 38$

$4538 = 4000 + 500 + 38$

Expand each of these in *three* different ways.

17. 7628 **18.** 5960 **19.** 8531

20. 4095 **21.** 1803 **22.** 9712

Write each number in standard form.

23. $4000 + 404$ **24.** $400 + 40 + 4$

25. $4040 + 4$ **26.** $4000 + 440$

27. $4000 + 4$ **28.** $4000 + 44$

29. $4000 + 400 + 40$ **30.** $4000 + 400 + 4$

Nan was born in 1971. She says she can tell how old she is in any year this way:

$1975 \rightarrow 1 + 9 + 7 + 5 \rightarrow 22 \rightarrow 2 + 2 \rightarrow 4$

She was 4 years old in 1975.

1. Will this always work for Nan?

Reverse the order of the digits in

1991

and get

1991

2. For what other years can this be done?

Turn the year

1961

upside down and get

1961

3. Find another year for which this can be done.

try this

Regrouping

The cross-country race covered fifteen hundred metres.

Fifteen hundred can be shown like this 1500

Another name for fifteen hundred is one thousand five hundred.

Working Together

Write the numerals.

1. nineteen hundred

2. ten hundred fifty

3. twenty-three hundred five

Write the words without using *thousands.*

Example: For 1200, write *twelve hundred.*

4. 1250 **5.** 2500

Write each number in standard form.

	thousands	hundreds	tens	ones
6.		19	8	5
7.	1	16	2	14
8.		9	13	7

Regroup to show 10 more hundreds.

Example: For 2534, show ~~2~~ ~~5~~ 34. (1 15)

9. 2160 **10.** 2000

Regroup to show 10 more tens.

Example: For 1056, think 10 hundreds, 5 tens and show ~~10~~ ~~5~~ 6. (9 15)

11. 2025 **12.** 1004

Regroup to show 10 more ones.

Example: For 1004, think 100 tens, 4 ones and show ~~1~~ ~~0~~ ~~0~~ ~~4~~. (9 9 14)

13. 1000 **14.** 1305

Exercises

Write each number in standard form.

	thousands	hundreds	tens	ones
1.		15	0	5
2.	1	12	2	17
3.		13	13	3
4.	1	5	9	12
5.		9	14	2
6.	1	19	10	6

Regroup to show 10 more hundreds.

7. 2624 **8.** 2200 **9.** 2087

Regroup to show 10 more tens.

10. 1645 **11.** 1078 **12.** 2000

Regroup to show 10 more ones.

13. 1351 **14.** 1903 **15.** 2000

Regroup to show 10 more ones.
Then regroup to show 10 more tens.

Example: For 1325, show $13\overset{1}{2}\overset{15}{5}$.

Then show $1\overset{11}{\overset{}{2}}\overset{}{\overset{1}{3}}\overset{15}{5}$.

16. 1416 **17.** 1032 **18.** 1730

Here are some important dates in history. Write the numerals.

19. fourteen hundred ninety-two
20. seventeen hundred fifty-nine
21. eighteen hundred sixty-seven
22. nineteen hundred sixty-nine
23. fifteen hundred thirty-four
24. nineteen hundred forty-nine
25. nineteen hundred eighteen

Copy and complete each addition table.

1.

+	0	1	2	3	4	5	6	7	8	9
0										
1										
2										
3										
4										
5										
6										
7										
8										
9										

2.

+	4	
5	9	7
		3

Think
□ + 4 = 9
5 + 4 = 9

3.

+	□		
6	13		
	14		15
		14	13

Think
6 + □ = 13
6 + 7 = 13

4.

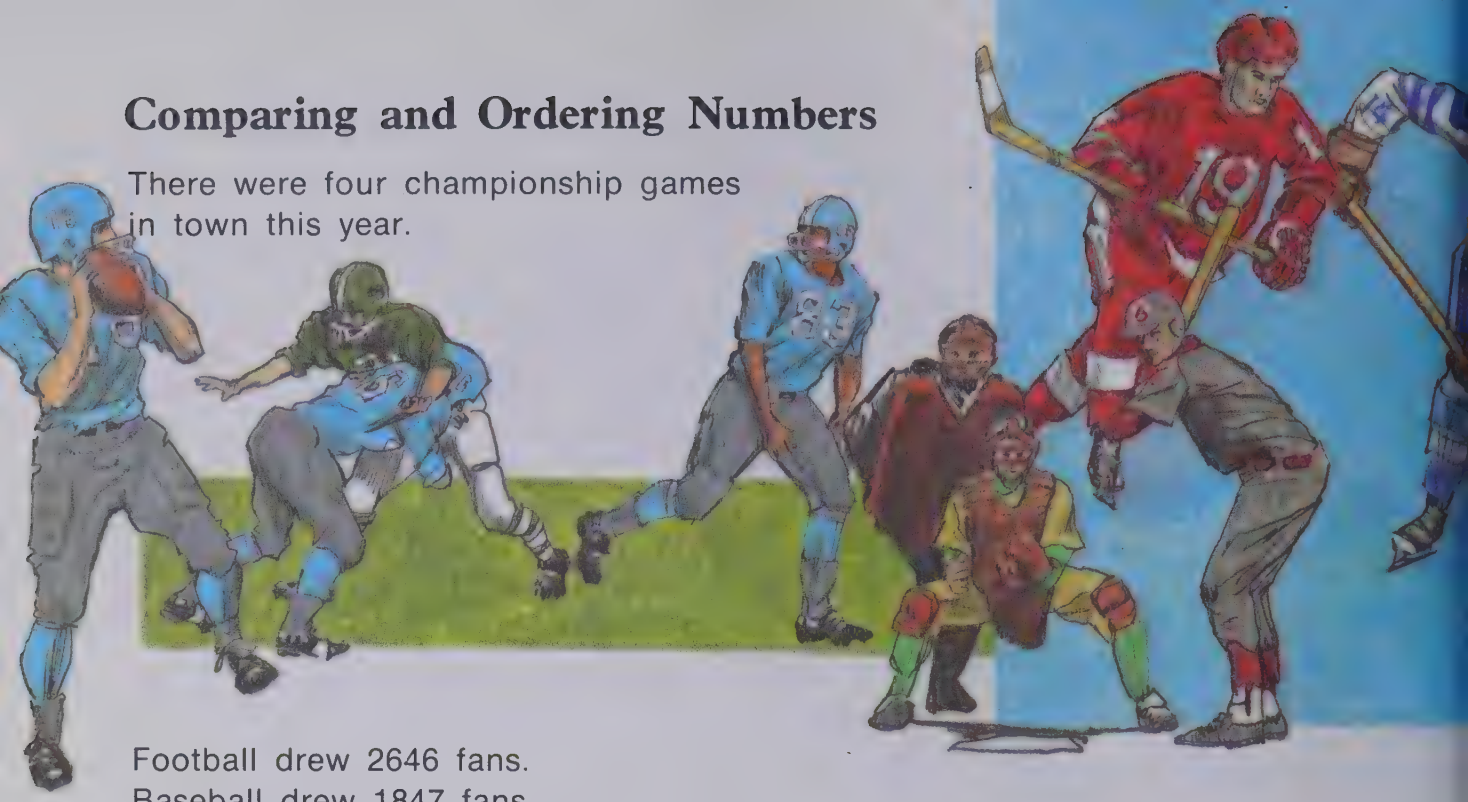
+	□				
				15	13
	15	10			
			10		
9		13			
			11		10
	17			16	

Think
9 + □ = 13
9 + 4 = 13

KEEPING SHARP

Comparing and Ordering Numbers

There were four championship games in town this year.



Football drew 2646 fans.
Baseball drew 1847 fans.
Hockey drew 2651 fans.
Basketball drew 2495 fans.

Which championship game was seen by the greatest number of people?

2 thousands are more than 1 thousand.

2	6	4	6
~~1~~	8	4	7
2	6	5	1
2	4	9	5

6 hundreds are more than 4 hundreds.

2	6	4	6
~~1~~	8	4	7
2	6	5	1
2	~~4~~	9	5

5 tens are more than 4 tens.

2	6	~~4~~	6
~~1~~	8	4	7
2	6	5	1
2	~~4~~	9	5

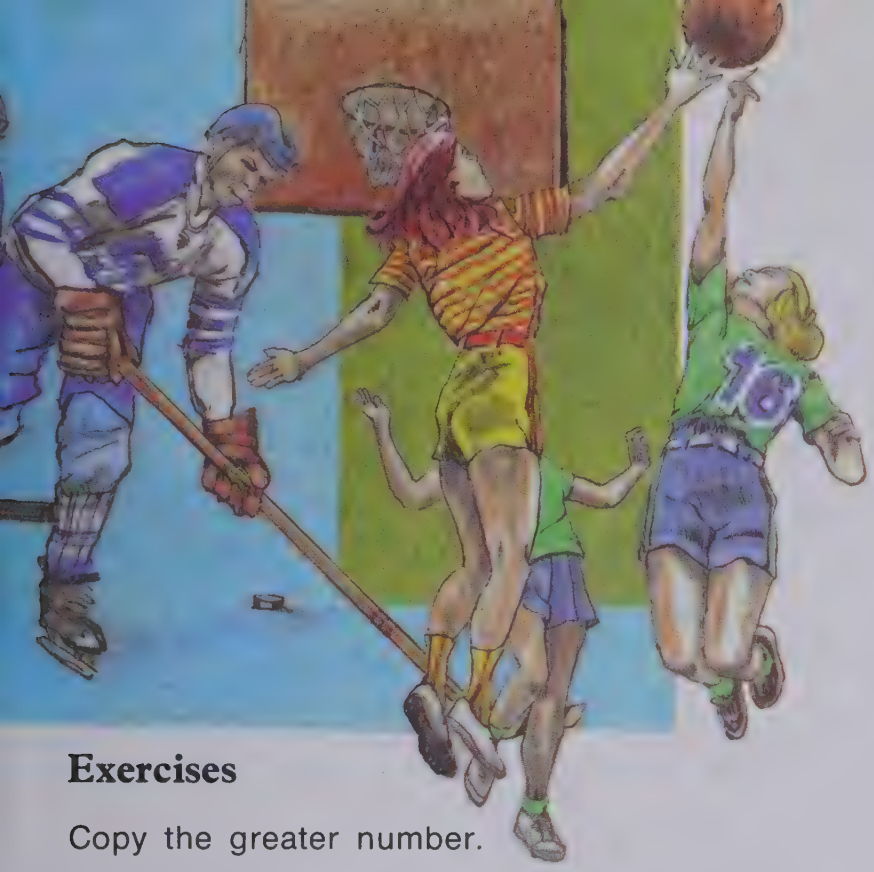
The greatest number of people, 2651, watched the hockey championship.

Working Together

Which number in each pair is greater?

List each group of numbers in order from least to greatest.

1. 3254 3654
2. 1284 1281
3. 4012 4120 4102
4. 5648 5486 5646



Exercises

Copy the greater number.

1. 3561 or 5163
2. 2039 or 2093
3. 8206 or 859
4. 5126 or 5261

Write $>$ or $<$ to make a true statement.

Examples: $7530 > 7350$ shows 7530 is greater than 7350. $7350 < 7530$ shows 7350 is less than 7530.

5. 4861 ◯ 6841
6. 5210 ◯ 597
7. 1737 ◯ 1731
8. 2409 ◯ 2490
9. 8573 ◯ 8753
10. 3649 ◯ 3496

List these numbers in order from least to greatest.

11. 5964, 4956, 5694, 5649

12. 2233, 3223, 3232, 233, 2323, 2332, 223, 3322

This is a Magic Square.

Add across, down, or diagonally and get 15.

1. Try it.

4	9	2	→ 15
3	5	7	→ ?
8	1	6	→ 15
↓ 15	↓ ?	↓ 15	?

2. Complete this Magic Square so that all sums are 18.

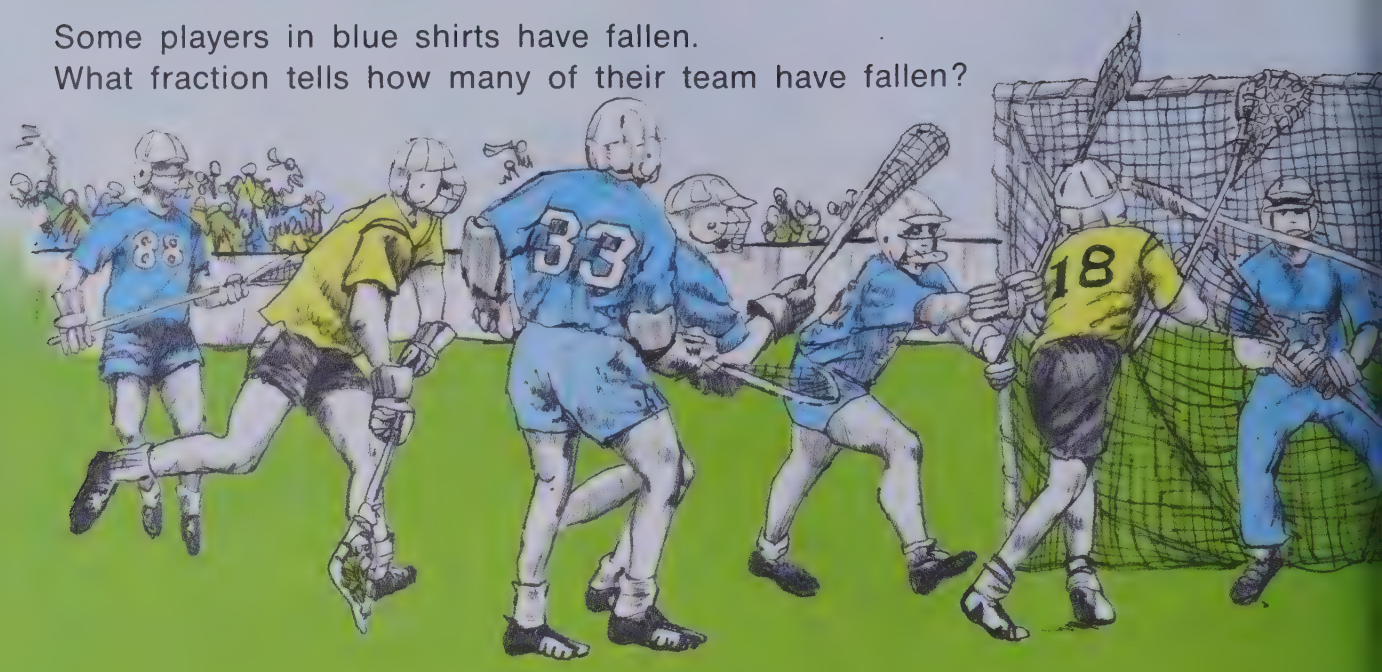
7	7	?
?	?	?
?	5	?

3. Try to arrange the nine numbers
   0, 1, 2, 3, 4
   5, 6, 7, 8
   to make a Magic Square.

try this

Fractions for Parts of Sets

Some players in blue shirts have fallen.
What fraction tells how many of their team have fallen?

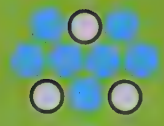


10 players in blue shirts.

3 have fallen.

$\frac{3}{10}$ of the team has fallen.

Working Together



1. How many circles?
2. How many shaded?
3. What fraction tells how many are shaded?

4. How many circles?
5. How many shaded?
6. What fraction tells how many are shaded?

Draw sets of circles and shade to show these fractions.

7. $\frac{8}{10}$ **8.** $\frac{1}{2}$ **9.** $\frac{1}{4}$ **10.** $\frac{2}{3}$

Exercises

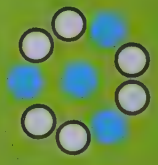
Write the fraction that shows how many of each set are shaded.

1.

2.

3.

4.



Draw sets of circles and shade to show these fractions.

5. $\frac{2}{4}$ **6.** $\frac{2}{10}$ **7.** $\frac{1}{3}$ **8.** $\frac{6}{10}$

9. $\frac{3}{10}$ **10.** $\frac{1}{2}$ **11.** $\frac{7}{10}$ **12.** $\frac{3}{4}$

Answer each question.

13. A hockey game has 3 periods. When 2 periods are played, what fraction tells how much of the game has been played?

14. A basketball game has 4 quarters. When 2 quarters are played, what fraction tells how much of the game has been played?

15. In baseball, 2 teams bat each inning. When 1 team is done batting, what fraction tells what part of the inning is over?

16. In ten-pin bowling, when 8 pins are knocked down, 2 pins are left standing. What fraction tells how many pins are left standing?

17. When 9 pins are knocked down, 1 pin is left standing. What fraction tells how many of the ten pins are left standing?

Add.

1.	25 + 34	**2.**	557 + 30
3.	512 + 134	**4.**	426 + 421
5.	870 + 13	**6.**	23 + 64
7.	441 + 205	**8.**	36 + 3
9.	133 + 56	**10.**	631 + 24

Subtract.

11.	45 − 32	**12.**	782 − 142
13.	173 − 41	**14.**	988 − 210
15.	88 − 62	**16.**	449 − 18
17.	356 − 203	**18.**	29 − 7
19.	697 − 42	**20.**	275 − 154

KEEPING SHARP

More Information Needed

Sometimes more information is needed to solve a problem.

Example: 13 boys and all the girls were outdoors at recess. How many children were outdoors at recess?

To solve this problem, you need to know the number of girls.

If there were 17 girls, then

$13 + 17 = 30$ and

30 children were outdoors at recess.

Tell what information is needed. Make up numbers for the missing information and solve the problems.

1. Ralph has a plant that is 58 cm tall. Robbie's plant is shorter. How much taller is Ralph's plant?

2. One bag holds 28 kg of sand. The other bag is heavier. How many kilograms of sand are there in all?

3. Pam had $5.00. She bought a yellow scarf. How much money does she have left?

4. Teresa left the room. She came back at 2:45. How long was she gone?

5. The temperature is 11°C. One hour ago it was colder. How much warmer is it now?

6. I have 97 toy blocks. I want to build two houses. How many more blocks do I need?

7. Jack had some money. He bought a belt for $1.67. How much does he have left?

8. Each jug of cider holds 5 L. How many litres of cider are there in all?

9. Dean can touch a mark 2 m high. Craig cannot reach that high. How much higher can Dean reach than Craig?

10. Each side of a building is 10 m long. How far must Kate walk to walk around the building?

PROBLEM SOLVING

Checking Up

Write the numerals.

1. two thousand one hundred forty-six
2. five thousand fourteen
3. three thousand six hundred fifty
4. seven thousand twenty
5. four thousand two hundred three
6. one thousand seven

Write the words.

7. 6342 **8.** 3005 **9.** 5701 **10.** 4086

Write each number in expanded form.

11. 2562 **12.** 1073 **13.** 8020 **14.** 7109

Write each number in standard form.

15. $3000 + 400 + 30 + 8$
16. $1000 + 300 + 5$
17. $4000 + 40 + 1$
18. $2000 + 800 + 10$

19.

thousands	hundreds	tens	ones
	12	4	3

20.

thousands	hundreds	tens	ones
	9	12	7

Write the number that completes each sentence.

21. 1325 is equal to ▒ hundreds, 2 tens, 5 ones.
22. 1738 is equal to 1 thousand, 6 hundreds, ▒ tens, 8 ones.

Copy the greater number.

23. 2348 or 2368 **24.** 4646 or 4466 **25.** 1098 or 1890

Write $>$ or $<$ to complete each sentence.

26. 3621 ● 3619
27. 2357 ● 2753

List these numbers in order from least to greatest.

28. 3441, 4341, 3414, 413, 3411, 4431

Write the fraction that shows how many of each set are shaded.

29.

30.

12 ADDITION
Practice

Choose a path and find each sum

1. from Quebec to Frobisher Bay.
2. from Inuvik to Saskatoon.
3. from Vancouver to St. John's.

Play this game.

4. Start at Vancouver. Move $2 + 6$ or 8 spaces. Continue by moving the amount shown in each space on which you land. Try to land *exactly* at St. John's. (You can go over any space more than once.)

6 + 6
1 + 3
3 + 2
6 + 1
4 + 1
9 + 4
Frobisher Bay
5 + 5
1 + 9
7 + 8
1 + 2
6 + 0
7 + 6
9 + 9
7 + 2
0 + 2
9 + 3
4 + 9
6 + 7
3 + 8
6 + 9
6 + 5
3 + 4
1 + 6
5 + 3
4 + 3
1 + 1
St. John's
8 + 7
9 + 1
6 + 2
2 + 0
3 + 5
1 + 4
8 + 5
8 + 4
1 + 8
9 + 6
2 + 2
3 + 0
7 + 9
Quebec
8 + 1
2 + 8
8 + 6
3 + 3

Practice

Each 7 Up bottle holds 750 mL (millilitres). The smaller cup holds 290 mL. The larger cup holds 475 mL. Will the two cups together hold all the 7 Up from one bottle?

1000 millilitres equal 1 litre.
1000 mL = 1 L

Add 290
+ 475

Add ones.

$$\begin{array}{r} 290 \\ +\ 475 \\ \hline 5 \end{array}$$

Add tens and regroup.

$$\begin{array}{r} {\scriptstyle 1} \\ 290 \\ +\ 475 \\ \hline 65 \end{array}$$

9 tens plus 7 tens equal 16 tens. Regroup 16 tens as 1 hundred, 6 tens.

Add hundreds.

$$\begin{array}{r} {\scriptstyle 1} \\ 290 \\ +\ 475 \\ \hline 765 \end{array}$$

The cups together hold 765 mL.
They will hold the 750 mL of 7 Up from one bottle.

In some additions, no regrouping is needed.

$$\begin{array}{r} 213 \\ +\ 156 \\ \hline 369 \end{array}$$

In some additions, 10 ones must be regrouped as 1 ten.

$$\begin{array}{r} {\scriptstyle 1} \\ 438 \\ +\ 216 \\ \hline 654 \end{array}$$

8 ones plus 6 ones equal 14 ones. Regroup 14 ones as 1 ten, 4 ones.

The smaller cups in front hold 205 mL and the larger cups in back hold 265 mL when filled to the brim.

21. How much will the Distance cup and the Speed cup hold in all when filled to the brim?

22. How much will the Mass cup and the Volume cup hold in all when filled to the brim?

The smaller cups hold 170 mL and the larger cups hold 230 mL when filled to the mark near the top.

23. How much will the Temperature cup and the Speed cup hold filled to the mark?

24. How much will the Think Metric cup and the Distance cup hold when filled to the mark?

25. How much will two Mass cups hold when filled to the mark?

***26.** Which holds more, four Volume cups filled to the mark or three Temperature cups filled to the mark?

Exercises

Add.

1. 52 + 24	**2.** 77 + 17	**3.** 59 + 3	**4.** 42 + 66
5. 231 + 358	**6.** 128 + 726	**7.** 405 + 67	**8.** 83 + 13
9. 498 + 110	**10.** 65 + 8	**11.** 751 + 15	**12.** 66 + 26
13. 341 + 442	**14.** 52 + 67	**15.** 270 + 93	**16.** 155 + 34
17. 293 + 196	**18.** 347 + 224	**19.** 943 + 37	**20.** 382 + 45

Practice

158 airplanes landed at the lake in July. 73 airplanes landed in August. How many airplanes landed in July and August?

Add 158
+ 73

Add ones and regroup.

$$\begin{array}{r} {\scriptstyle 1} \\ 158 \\ +\ 73 \\ \hline 1 \end{array}$$

Add tens and regroup.

$$\begin{array}{r} {\scriptstyle 1\ 1} \\ 158 \\ +\ 73 \\ \hline 31 \end{array}$$

Add hundreds.

$$\begin{array}{r} {\scriptstyle 1\ 1} \\ 158 \\ +\ 73 \\ \hline 231 \end{array}$$

231 airplanes landed in July and August.

Exercises

Solve.

1. 275 people stayed at the lodge. 339 camped outdoors. How many people came to the lake in all?
2. There were 164 rowboat rentals and 258 canoe rentals. How many rentals were there in all?
3. A boat is 325 m from one side of the lake and 272 m from the other side. How far is it across the lake?
4. An airplane flies 258 km (kilometres) to the lake and 258 km back. How far does it fly on a round trip?

Add.

5. 212 + 436	**6.** 52 + 16	**7.** 330 + 57	**8.** 451 + 231	**9.** 154 + 32
10. 28 + 33	**11.** 235 + 17	**12.** 349 + 24	**13.** 454 + 306	**14.** 219 + 669
15. 262 + 480	**16.** 423 + 96	**17.** 75 + 41	**18.** 532 + 176	**19.** 351 + 82
20. 57 + 56	**21.** 168 + 38	**22.** 665 + 195	**23.** 394 + 419	**24.** 217 + 83

Birds are counted and banded to keep track of how many there are, where they fly, and how fast and far they travel.

On Saturday, 177 geese and 92 ducks were banded. On Sunday, 119 geese and 186 ducks were banded.

In all, how many

1. geese were banded?
2. ducks were banded?
3. ducks and geese were banded?

PROBLEM SOLVING

Four-Digit Sums

Conservation officers stocked the pond with 850 small fish and 475 large fish. How many fish did they add to the pond?

Add
$$\begin{array}{r} 850 \\ +\,475 \\ \hline \end{array}$$

Add ones.

$$\begin{array}{r} 850 \\ +\,475 \\ \hline 5 \end{array}$$

Add tens and regroup.

$$\begin{array}{r} {\scriptstyle 1} \\ 850 \\ +\,475 \\ \hline 25 \end{array}$$

Add hundreds.

$$\begin{array}{r} {\scriptstyle 1} \\ 850 \\ +\,475 \\ \hline 1325 \end{array}$$

13 hundreds are
1 thousand, 3 hundreds.

The sum is thirteen hundred twenty-five
or one thousand three hundred twenty-five.

The officers added 1325 fish to the pond.

Working Together

Follow the steps.

1.

$$\begin{array}{r} 714 \\ +\ 650 \\ \hline \end{array}$$

Add ones.
Add tens.
Add hundreds, write the sum as 1364.

2.

$$\begin{array}{r} 995 \\ +\ 41 \\ \hline \end{array}$$

Add ones.
Add tens and regroup.
Add hundreds and write the sum.

3.

$$\begin{array}{r} 675 \\ +\ 895 \\ \hline \end{array}$$

Add and regroup.
Add and regroup.
Add and write the sum.

Exercises

Add.

1. 824 + 452	**2.** 713 + 551	**3.** 605 + 483	**4.** 913 + 532	**5.** 885 + 704
6. 831 + 198	**7.** 952 + 64	**8.** 288 + 698	**9.** 893 + 43	**10.** 846 + 248
11. 654 + 326	**12.** 933 + 985	**13.** 996 + 31	**14.** 646 + 257	**15.** 618 + 543
16. 875 + 627	**17.** 946 + 79	**18.** 637 + 667	**19.** 997 + 8	**20.** 777 + 496

Practice

Adam kept track of the distances his family drove on their holidays.

1. Was it farther from the city to the lake or from the park to home?
2. Before the trip, Aunt Ida visited Adam's home. How far did she drive over and back?
3. How far did Adam's family travel from their home to the city?
4. How far did they travel from the lake to the park?
5. Was it farther from the city to the mountains or from the mountains to the park?
6. Which is farther from home, the park or the city?

The odometer in their car showed 119 km at the start of the trip.

What will it show when they reach

7. Aunt Ida's?

8. the city?

9. the lake?

Now it should show

0	0	4	7	7	0

What will it show when they reach

10. the mountains?

11. the park?

12. home?

If the odometer showed

0	0	0	0	0	0

at the start,

***13.** what would it show at the end of the trip?

Add.

14. 723 + 644	**15.** 945 + 84	**16.** 103 + 525	**17.** 95 + 99	**18.** 846 + 93
19. 859 + 616	**20.** 271 + 783	**21.** 447 + 45	**22.** 765 + 706	**23.** 323 + 753
24. 766 + 961	**25.** 877 + 503	**26.** 554 + 277	**27.** 480 + 543	**28.** 591 + 558
29. 926 + 322	**30.** 620 + 586	**31.** 381 + 191	**32.** 643 + 812	**33.** 656 + 934
34. 846 + 727	**35.** 233 + 369	**36.** 884 + 328	**37.** 502 + 886	**38.** 879 + 868

Adding Amounts of Money

A camp stove costs $27.95. Fuel costs $1.59. How much do the stove and fuel cost together?

Add $27.95 + 1.59

Add the cents, regroup when needed.

$$\begin{array}{r} {\scriptstyle 1\ \ 1\ \ } \\ \$27.95 \\ +\ \ 1.59 \\ \hline \$\ \ \ .54 \end{array}$$

Add the dollars.

$$\begin{array}{r} {\scriptstyle \ \ 1\ \ 1\ \ } \\ \$27.95 \\ +\ \ 1.59 \\ \hline \$29.54 \end{array}$$

The stove and fuel cost $29.54 together.

Working Together

Line up the dollars and cents in vertical form.

1. \$7.15 + \$6.59 **2.** \$16.50 + \$4.85

Follow the steps.

3.

$$\begin{array}{r} \$19.45 \\ +\ \ 5.81 \\ \hline \end{array}$$

Add.
Add and regroup.
Add and regroup.
Add.

Exercises

Add.

1. \$7.61 + \$6.39 **2.** \$5.78 + \$2.85
3. \$9.70 + \$0.96 **4.** \$9.84 + \$27.63
5. \$19.29 + \$9.28 **6.** \$30.43 + \$5.87

7. $\begin{array}{r} \$7.48 \\ +\ 5.17 \\ \hline \end{array}$ **8.** $\begin{array}{r} \$6.49 \\ +\ 0.54 \\ \hline \end{array}$ **9.** $\begin{array}{r} \$4.81 \\ +\ 9.36 \\ \hline \end{array}$

10. $\begin{array}{r} \$25.80 \\ +\ 7.83 \\ \hline \end{array}$ **11.** $\begin{array}{r} \$16.36 \\ +\ 6.34 \\ \hline \end{array}$ **12.** $\begin{array}{r} \$32.92 \\ +\ 7.35 \\ \hline \end{array}$

Solve.

13. \$34.45 for a sleeping bag.
\$6.25 for a floor mat.
How much for both?

14. \$17.98 for hiking boots.
\$3.50 for socks.
How much for both?

***15.** \$16.75 for a gas lantern.
\$3.30 for a flashlight.
Is \$20.00 enough for both?

Copy and complete these multiplication tables.

1.

×	2
1	
2	
3	
4	
5	
6	
7	
8	
9	

2.

×	3
1	
2	
3	
4	
5	
6	
7	
8	
9	

3.

×	4
1	
2	
3	
4	
5	
6	
7	
8	
9	

4.

×	5
1	
2	
3	
4	
5	
6	
7	
8	
9	

5.

×	1	2	3	4	5
1					
2					
3					
4					
5					

KEEPING SHARP

Practice

A Sales Tax Table shows how much tax to add on to the price of something.

Between		Tax
$29.19	and $29.31	$2.34
29.32	and 29.43	2.35
29.44	and 29.56	2.36
29.57	and 29.68	2.37
29.69	and 29.81	2.38
29.82	and 29.93	2.39
29.94	and 30.06	2.40
30.07	and 30.18	2.41
30.19	and 30.31	2.42
30.32	and 30.43	2.43

How much will this fishing rod and reel cost after sales tax is added on?

The price of the rod and reel is $29.90.

$29.90 is between $29.82 and $29.93, so the tax is $2.39.

Add $29.90 and $2.39.

$$\begin{array}{r} {\scriptstyle 1\ \ 1\ \ \ } \\ \$29.90 \\ +\ \ 2.39 \\ \hline \$32.29 \end{array}$$

The rod and reel cost $32.29 after sales tax is added on.

Exercises

Find the tax in the table.
Add the tax to the sale price.

1. SALE! HIP BOOTS $10.97

2. SALE! RUBBER RAFT $43.49

3. SALE! TACKLE BOX $24.25

4. SALE! FOLDING CHAIR $11.70

Between		Tax
$10.94	and $11.06	$0.88
11.07	and 11.18	0.89
11.19	and 11.31	0.90
11.32	and 11.43	0.91
11.44	and 11.56	0.92
11.57	and 11.68	0.93
23.82	and 23.93	1.91
23.94	and 24.06	1.92
24.07	and 24.18	1.93
24.19	and 24.31	1.94
43.19	and 43.31	3.46
43.32	and 43.43	3.47
43.44	and 43.56	3.48
43.57	and 43.68	3.49
43.69	and 43.81	3.50
43.82	and 43.93	3.51

Add.

5. $30.28 + 2.42

6. $23.99 + 1.92

7. $29.70 + 2.38

8. $43.66 + 3.49

9. $11.48 + 0.92

10. $29.39 + 2.35

Find the Sub-Total. Find the Tax. Find the Total.

11. Price $15.55, $ 8.35
Sub-Total ?
Tax ?
Total ?

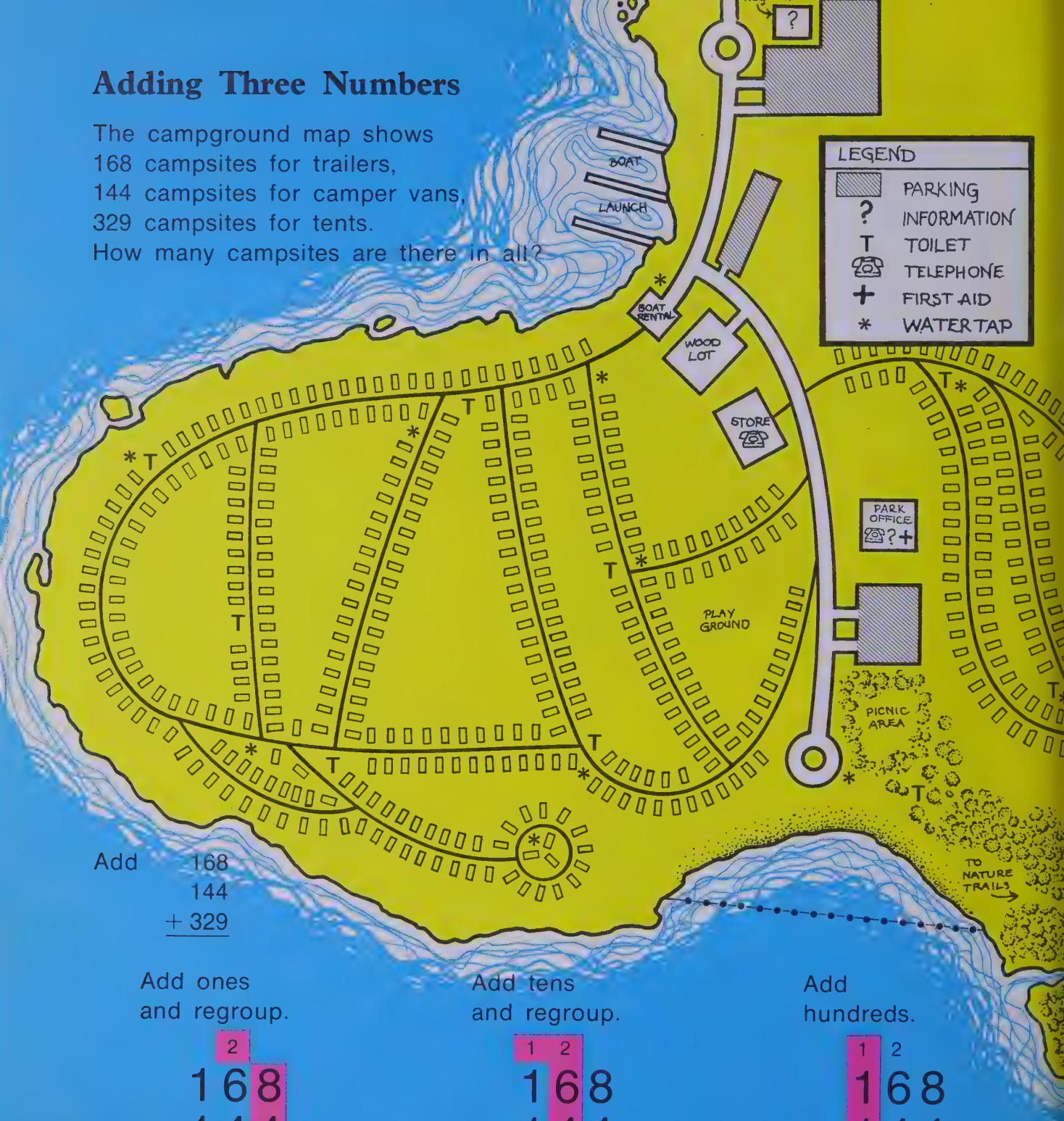
12. Price $37.10, $ 6.73
Sub-Total ?
Tax ?
Total ?

13. Price $ 5.67, $ 5.67
Sub-Total ?
Tax ?
Total ?

14. Price $10.43, $ 0.75
Sub-Total ?
Tax ?
Total ?

Adding Three Numbers

The campground map shows
168 campsites for trailers,
144 campsites for camper vans,
329 campsites for tents.
How many campsites are there in all?



Add 168
144
+ 329

Add ones and regroup.

$$\begin{array}{r} {\scriptstyle 2} \\ 168 \\ 144 \\ +\ 329 \\ \hline 1 \end{array}$$

Add tens and regroup.

$$\begin{array}{r} {\scriptstyle 1\ 2} \\ 168 \\ 144 \\ +\ 329 \\ \hline 41 \end{array}$$

Add hundreds.

$$\begin{array}{r} {\scriptstyle 1\ 2} \\ 168 \\ 144 \\ +\ 329 \\ \hline 641 \end{array}$$

There are 641 campsites in all.

Working Together

Line up the hundreds, tens, and ones in vertical form.

1. $524 + 36 + 208$ **2.** $32 + 421 + 379$ **3.** $245 + 9 + 84$

Follow the steps.

4.

$$\begin{array}{r} 282 \\ 133 \\ +\ 57 \\ \hline \end{array}$$

Add ones and regroup.
Add tens and regroup.
Add hundreds.

5.

$$\begin{array}{r} 386 \\ 47 \\ +\ 168 \\ \hline \end{array}$$

..... first step
..... second step
..... third step

Add.

6. $\begin{array}{r} 271 \\ 183 \\ +\ 322 \\ \hline \end{array}$ **7.** $\begin{array}{r} 426 \\ 89 \\ +\ 175 \\ \hline \end{array}$ **8.** $\begin{array}{r} 168 \\ 7 \\ +\ 32 \\ \hline \end{array}$ **9.** $\begin{array}{r} 325 \\ 303 \\ +\ 467 \\ \hline \end{array}$

Exercises

Show the addends in vertical form and add.

1. $126 + 153 + 208$ **2.** $57 + 84 + 239$ **3.** $26 + 9 + 108$

4. $315 + 591 + 139$ **5.** $365 + 677 + 49$ **6.** $217 + 235 + 276$

7. $248 + 88 + 74$ **8.** $126 + 440 + 528$ **9.** $582 + 113 + 252$

Add.

10. $\begin{array}{r} 209 \\ 477 \\ +\ 262 \\ \hline \end{array}$ **11.** $\begin{array}{r} 513 \\ 262 \\ +\ 127 \\ \hline \end{array}$ **12.** $\begin{array}{r} 23 \\ 164 \\ +\ 76 \\ \hline \end{array}$ **13.** $\begin{array}{r} 338 \\ 323 \\ +\ 433 \\ \hline \end{array}$ **14.** $\begin{array}{r} 112 \\ 7 \\ +\ 86 \\ \hline \end{array}$

15. $\begin{array}{r} 206 \\ 54 \\ +\ 96 \\ \hline \end{array}$ **16.** $\begin{array}{r} 402 \\ 284 \\ +\ 563 \\ \hline \end{array}$ **17.** $\begin{array}{r} 648 \\ 115 \\ +\ 50 \\ \hline \end{array}$ **18.** $\begin{array}{r} 150 \\ 106 \\ +\ 247 \\ \hline \end{array}$ **19.** $\begin{array}{r} 223 \\ 368 \\ +\ 326 \\ \hline \end{array}$

Practice

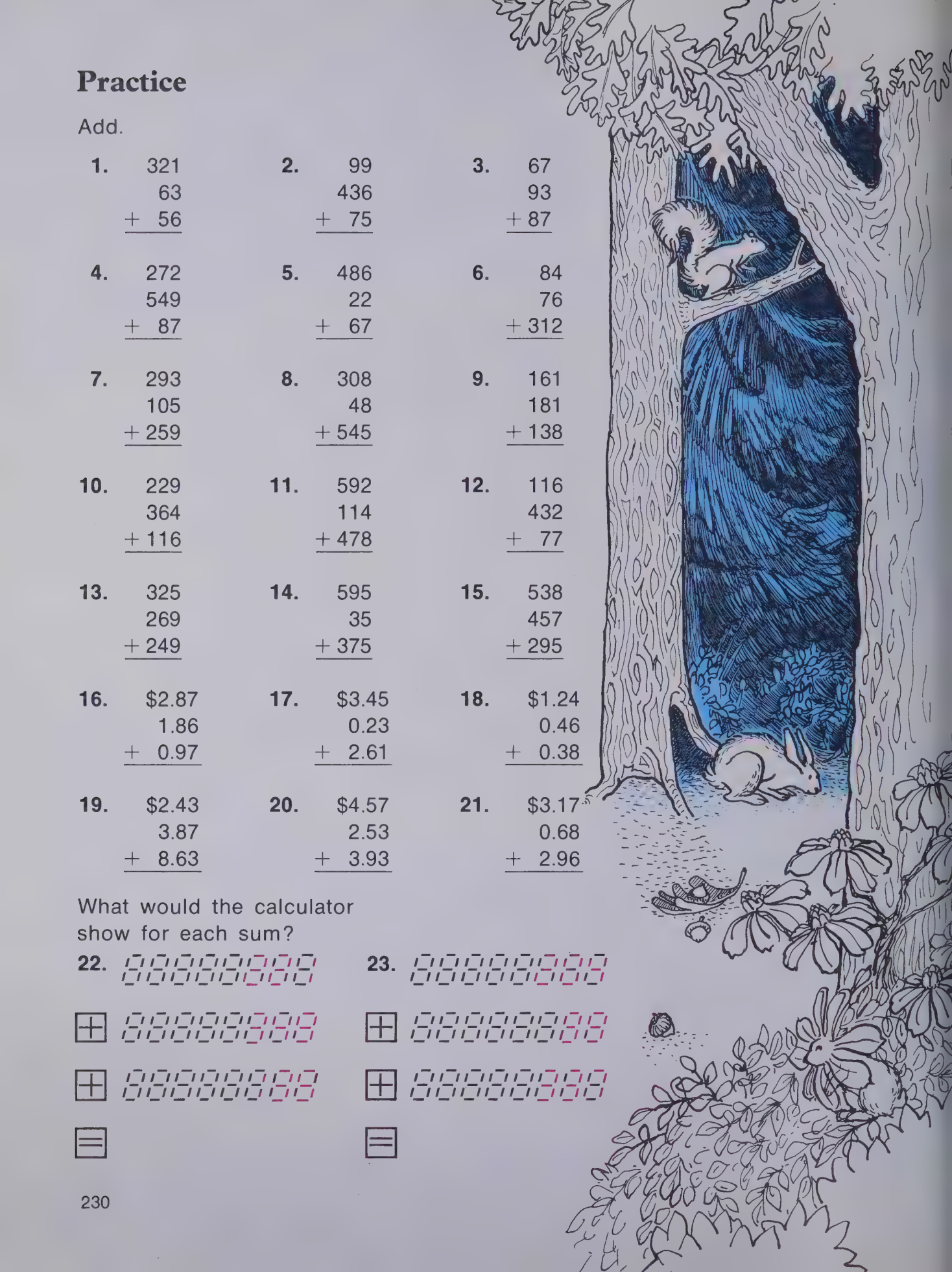
Add.

1.	321 63 + 56	**2.**	99 436 + 75	**3.**	67 93 + 87
4.	272 549 + 87	**5.**	486 22 + 67	**6.**	84 76 + 312
7.	293 105 + 259	**8.**	308 48 + 545	**9.**	161 181 + 138
10.	229 364 + 116	**11.**	592 114 + 478	**12.**	116 432 + 77
13.	325 269 + 249	**14.**	595 35 + 375	**15.**	538 457 + 295
16.	$2.87 1.86 + 0.97	**17.**	$3.45 0.23 + 2.61	**18.**	$1.24 0.46 + 0.38
19.	$2.43 3.87 + 8.63	**20.**	$4.57 2.53 + 3.93	**21.**	$3.17 0.68 + 2.96

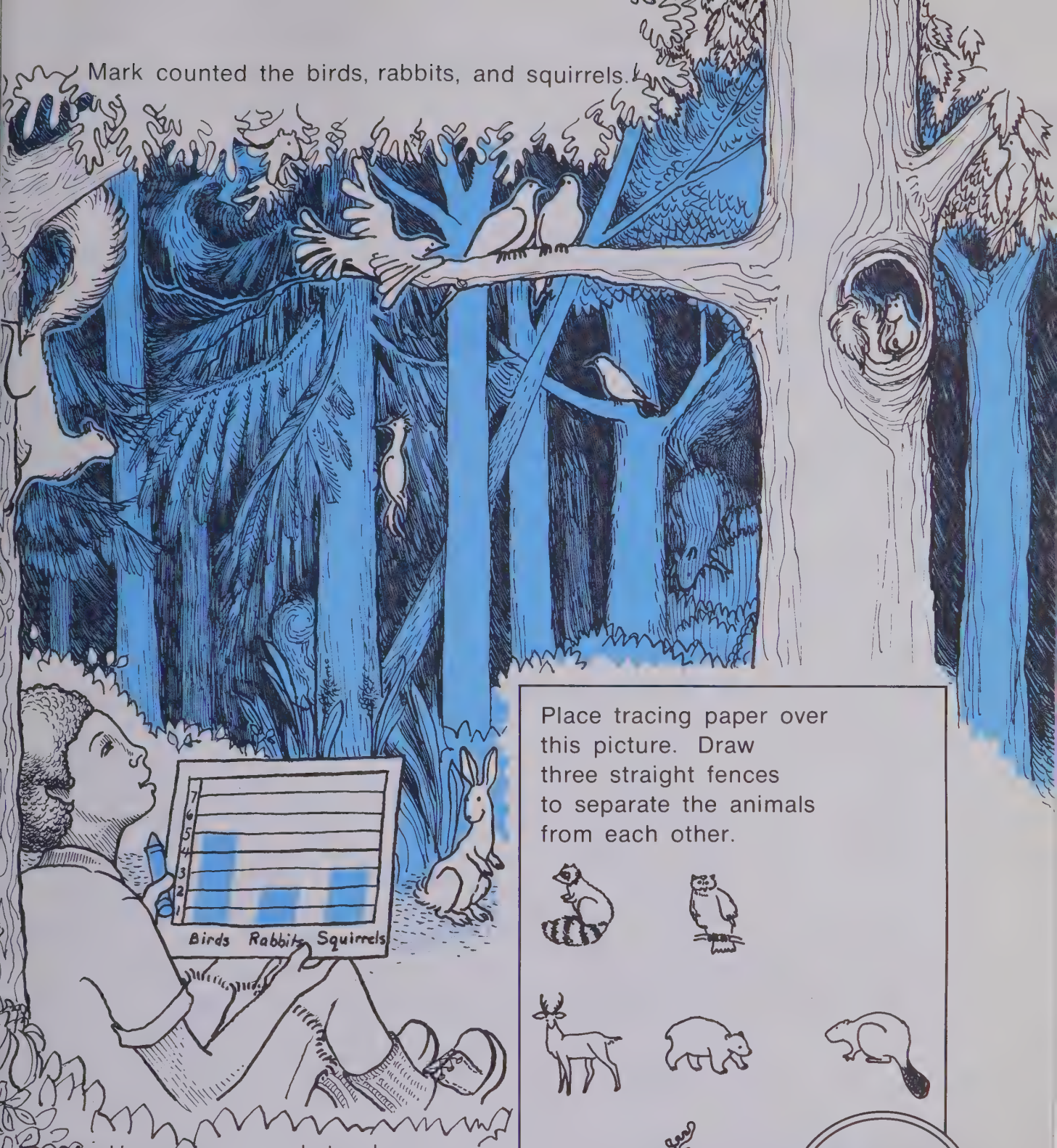
What would the calculator show for each sum?

22.

23.



Mark counted the birds, rabbits, and squirrels.



24. He made a graph to show how many he saw. But he did not see the hidden animals. Make a graph to show all the animals you can find.

Place tracing paper over this picture. Draw three straight fences to separate the animals from each other.

try this

Choosing the Information Needed

To solve problems, you have to choose the information you need.

Example:

One morning the Gibbs family drove 75 km. Then they stopped for gas. They bought 40 L of gas for $9.60. They also spent 85¢ for snacks. Then they drove 188 km more to Uncle Art's. The whole trip took 3 h (hours) and 20 min (minutes). How far did they drive?

Here is the only information needed to solve the problem:

Home to gas station: 75 km
Gas station to Uncle Art's: 188 km

Add $75 + 188 = 263$

The Gibbs family drove 263 km.

Choose the information needed for solving each problem. Then solve the problem.

1. There are 15 m of red ribbon and 23 m of red string. There are also 8 m of blue ribbon. The ribbon is on 2 spools. How many metres of ribbon are there in all?
2. One bottle of ketchup holds 350 mL. Another bottle holds 275 mL. A third bottle holds 625 mL. 825 mL are needed for the picnic. How much ketchup do the two larger bottles hold?
3. At one store Rhoda bought a shirt for $2.95 and a billfold for $2.49. She spent 80¢ for a milk shake. Then she bought some socks for $1.95. How much did Rhoda spend for clothes?
4. The zoo had 375 birds in its collection. 227 of them were songbirds. It received a shipment of 38 birds. 29 of them were songbirds. Now how many songbirds are in the collection?

PROBLEM SOLVING

Checking Up

Add.

1. 36 + 62	**2.** 217 + 92	**3.** 135 + 129	**4.** 278 + 157
5. 435 + 712	**6.** 456 + 580	**7.** 609 + 617	**8.** 863 + 254
9. 974 + 72	**10.** 580 + 420	**11.** 329 + 845	**12.** 587 + 503
13. $4.02 + 4.35	**14.** $5.07 + 5.21	**15.** $5.19 + 6.34	**16.** $5.81 + 7.34
17. 483 53 + 6	**18.** 145 29 + 239	**19.** 576 250 + 381	**20.** 173 783 + 423

Solve.

21. A bait bucket costs $1.59. A flashlight costs $8.90. How much do both cost?

22. A canteen costs $3.69. How much do two of the canteens cost?

23. Pierre rode 16 km from home to school and 178 km from school to the lake. A boat took him 8 km across the lake to camp. How far did Pierre go from home to camp?

24. 538 children went to camp in the first month. 645 children went to camp in the second month. How many children went to camp in the two months?

25. A paper cup holds 180 mL of hot chocolate. A mug holds 420 mL. How many millilitres of hot chocolate are needed to fill the cup and the mug?

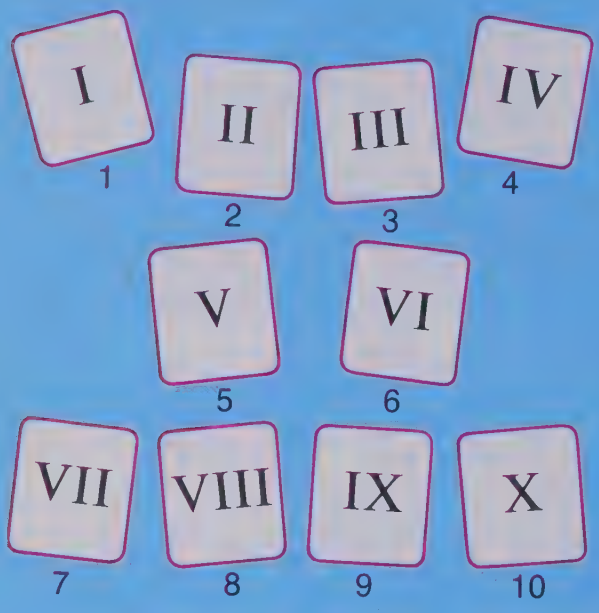
26. 87 pancakes were made from one package of mix. 85 were made from another package and 88 were made from a third package. How many pancakes were made in all?

13 SUBTRACTION

Practice

There are different ways to show numbers.

Roman numerals:



Subtract. Draw a Roman numeral to show each difference.

1. 6 − 4

2. 12 − 9

3. 10 − 1

4. 10 − 3

5. 13 − 9

6. 11 − 3

7. 6 − 5

8. 6 − 1

9. 15 − 9

10. 16 − 8

11. 15 − 5

12. 9 − 4

13. 6 − 2

14. 13 − 7

15. 11 − 8

Subtract. Draw a Chinese numeral to show each difference.

16. 11 − 2

17. 8 − 1

18. 13 − 8

19. 13 − 5

20. 10 − 7

21. 10 − 0

22. 5 − 4

23. 18 − 9

24. 7 − 4

25. 15 − 8

26. 11 − 7

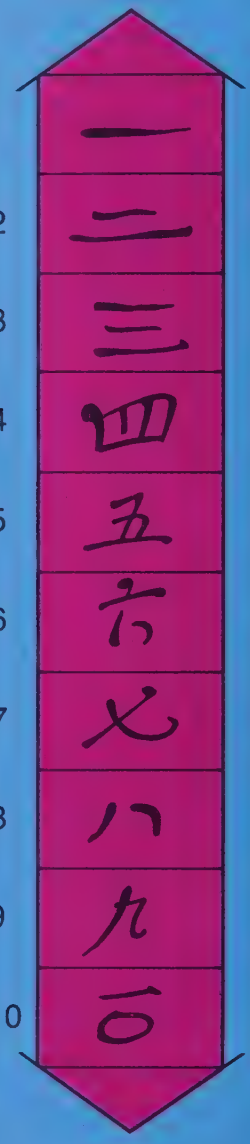
27. 7 − 2

28. 9 − 3

29. 12 − 4

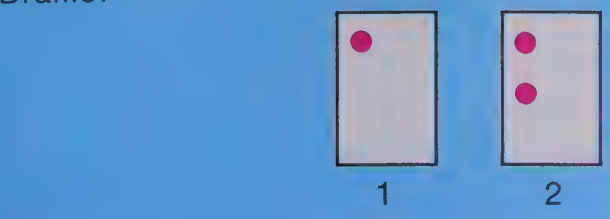
30. 10 − 8

Chinese numerals:

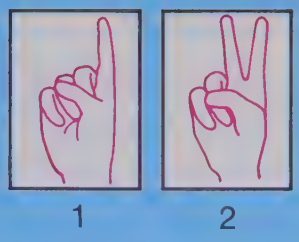


Have a friend check your work.

Braille:



Hand signs:



Subtract. Draw a Braille numeral to show each difference.

31. 11 − 6	**32.** 4 − 1	**33.** 14 − 6	
34. 8 − 4	**35.** 17 − 8	**36.** 8 − 6	
37. 12 − 7	**38.** 8 − 2	**39.** 14 − 7	
40. 9 − 8	**41.** 15 − 7	**42.** 11 − 5	
43. 13 − 3	**44.** 4 − 2	**45.** 9 − 5	

Subtract. Show each difference with a hand sign.

46. 10 − 6	**47.** 16 − 9	**48.** 5 − 3
49. 14 − 8	**50.** 10 − 2	**51.** 15 − 6
52. 10 − 5	**53.** 6 − 3	**54.** 10 − 9
55. 17 − 9	**56.** 12 − 6	**57.** 18 − 8
58. 8 − 5	**59.** 12 − 3	**60.** 11 − 4

Have a friend check your work.

Practice

A storm put 925 telephones out of service.
In one hour, the line workers had 780 fixed.
How many were still out of service?

Subtract 925
$-\ 780$

Subtract ones.

$$\begin{array}{r} 925 \\ -\ 780 \\ \hline 5 \end{array}$$

Cannot subtract
8 tens from 2 tens.
Regroup
9 hundreds, 2 tens as
8 hundreds, 12 tens.

$$\begin{array}{r} {\scriptstyle 8\ \ 12} \\ 9\not{2}\not{5} \\ -\ 780 \\ \hline 5 \end{array}$$

Then subtract tens
and subtract hundreds.

$$\begin{array}{r} {\scriptstyle 8\ \ 12} \\ 9\not{2}\not{5} \\ -\ 780 \\ \hline 145 \end{array}$$

145 telephones were still
out of service.

In some subtractions
no regrouping is needed.

$$\begin{array}{r} 574 \\ -\ 264 \\ \hline 310 \end{array}$$

In some subtractions
1 ten must be
regrouped as 10 ones.

$$\begin{array}{r} {\scriptstyle 8\ \ 13} \\ 4\not{9}\not{3} \\ -\ 368 \\ \hline 125 \end{array}$$

Cannot subtract 8 ones
from 3 ones. Regroup
9 tens, 3 ones as
8 tens, 13 ones.

Exercises

Subtract.

1.	41 − 23	**2.** 409 − 26
3.	797 − 122	**4.** 477 − 9
5.	63 − 43	**6.** 507 − 277
7.	139 − 45	**8.** 535 − 106
9.	729 − 350	**10.** 81 − 48
11.	730 − 15	**12.** 927 − 165
13.	350 − 170	**14.** 609 − 599

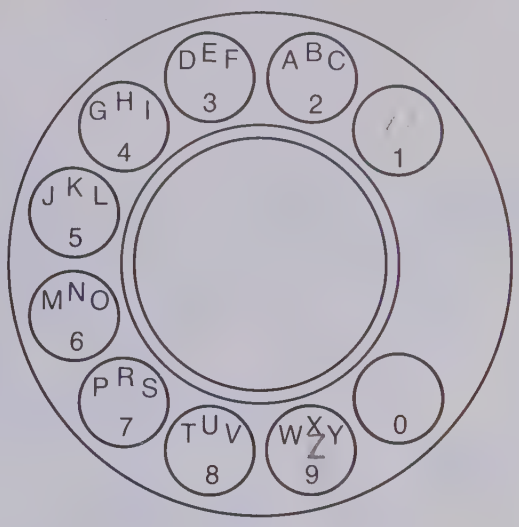
Solve.

15. 185 children were tested on dialing a telephone. 37 dialed wrong numbers. How many dialed correctly?

16. Out of 226 children, 192 knew a number to call in case of emergency. How many did not know an emergency number?

***17.** Suzie found her telephone number on page 48 of the telephone book. Faye found hers on page 53. How many pages are between 48 and 53?

A telephone dial shows both letters and numerals.



If your home phone number is 697-5223 you can call home by dialing MYPLACE

What is the telephone number,

	If to call	You had to dial
1.	the Library	LIBRARY
2.	the fruit market	BANANAS

What words can you make for these telephone numbers?

	To call	You must dial
3.	the laundry	528-6379
4.	the toy store	869-5263
5.	the zoo	264-6257

6. Can there be a word for your telephone number?

try this

Practice

The Drive-In Theater has room for 562 cars. 374 cars come on Friday night. How many more cars can the Drive-In hold?

To find how many more, subtract

$$\begin{array}{r} 562 \\ -\ 374 \\ \hline \end{array}$$

Cannot subtract 4 ones from 2 ones. Regroup 6 tens, 2 ones as 5 tens, 12 ones.

$$\begin{array}{r} {\scriptstyle 5\ 12} \\ 5\not{6}\not{2} \\ -\ 374 \\ \hline \end{array}$$

Subtract ones.

$$\begin{array}{r} {\scriptstyle 5\ 12} \\ 5\not{6}\not{2} \\ -\ 374 \\ \hline 8 \end{array}$$

Cannot subtract 7 tens from 5 tens. Regroup 5 hundreds, 5 tens as 4 hundreds, 15 tens.

$$\begin{array}{r} {\scriptstyle 4\ \not{5}\ 12} \\ {\scriptstyle \ \ 15} \\ \not{5}\not{6}\not{2} \\ -\ 374 \\ \hline 8 \end{array}$$

Subtract tens.

$$\begin{array}{r} {\scriptstyle 4\ \not{5}\ 12} \\ {\scriptstyle \ \ 15} \\ \not{5}\not{6}\not{2} \\ -\ 374 \\ \hline 88 \end{array}$$

Subtract hundreds.

$$\begin{array}{r} {\scriptstyle 4\ \not{5}\ 12} \\ {\scriptstyle \ \ 15} \\ \not{5}\not{6}\not{2} \\ -\ 374 \\ \hline 188 \end{array}$$

The Drive-In Theater can hold 188 more cars.

Exercises

Subtract.

1.	831 − 487	**2.**	140 − 93
3.	564 − 86	**4.**	906 − 156
5.	413 − 248	**6.**	472 − 55
7.	881 − 329	**8.**	536 − 491
9.	306 − 63	**10.**	896 − 649

Solve.

11. 374 cars at the theater. 289 were on time for the first movie. How many missed the start?

12. The first movie lasts 145 min (minutes). The second movie lasts 93 min. How much longer is the first movie?

13. After the first movie, 314 people visit the snack bar. 178 visit it after the second movie. How many more visited it after the first movie?

***14.** 374 cars at the theater. 28 leave after the first movie. 107 leave before the third movie. How many are there for the second movie?

Copy and complete these division tables.

1.

÷ 2	
2	1
4	
6	
8	
10	
12	
14	
16	
18	

2.

÷ 3	
27	9
24	
21	
18	
15	
12	
9	
6	
3	

3.

÷ 4	
4	
12	
20	
28	
36	
8	
16	
24	
32	

4.

÷ 5	
45	
5	
40	
10	
35	
15	
30	
20	
25	

Copy and complete this multiplication table.

5.

×		3		
4		12		
				0
5	20		5	
		9		6

Think

$4 \times \square = 12$

$4 \times 3 = 12$

and write 3 as one of the factors.

KEEPING SHARP

Subtracting from Four-Digit Numbers

Max keeps a list of radio stations he hears. His list had 625 stations after one year and 1348 after the next year. How many new stations did he hear in the second year?

Subtract 1348
− 625

Subtract ones.
Subtract tens.

$$\begin{array}{r} 1348 \\ -\ 625 \\ \hline 23 \end{array}$$

$$\begin{array}{r} 1348 \\ -\ 625 \\ \hline 23 \end{array}$$

Cannot subtract 6 hundreds from 3 hundreds. Think of 1 thousand, 3 hundreds as 13 hundreds.

Subtract hundreds.

$$\begin{array}{r} 1348 \\ -\ 625 \\ \hline 723 \end{array}$$

Max heard 723 new stations in the second year.

Working Together

Think of 1 thousand, 3 hundreds as 13 hundreds. Then complete each subtraction.

1. 1384 − 932 = 52

2. $\overset{3\,15}{1\not{4}\not{5}8}$ − 572 = 86

Subtract.

3. 1693 − 846

4. 1335 − 350

Exercises

Subtract.

1. 1269 − 843

2. 1575 − 724

3. 1072 − 735

4. 1123 − 690

5. 629 − 345

6. 1487 − 573

7. 114 − 72

8. 1512 − 562

9. 1480 − 741

10. 125 − 61

11. 1465 − 929

12. 375 − 187

13. 1164 − 999

14. 1059 − 382

15. 1358 − 563

16. 1650 − 651

Solve.

17. On the CB radio, a driver told Max about driving 720 km of a 1296 km trip. How much farther did the other driver have to go?

18. Max was heading for Calgary. One road sign showed

Calgary 1200 km

Max drove 650 km more that day. How far did he still have to go?

Practice

Subtract.

1.	118 − 26	**2.**	1468 − 721
3.	1406 − 530	**4.**	66 − 48
5.	984 − 328	**6.**	1062 − 828
7.	1728 − 755	**8.**	115 − 61
9.	62 − 36	**10.**	884 − 422
11.	1134 − 817	**12.**	106 − 94
13.	142 − 73	**14.**	1632 − 741
15.	107 − 25	**16.**	457 − 81
17.	1589 − 645	**18.**	1270 − 905
19.	1328 − 343	**20.**	1119 − 677
21.	1073 − 528	**22.**	1225 − 375
23.	1127 − 270	**24.**	1382 − 644

In some jobs, people work some distance from each other. But they talk to each other using walkie-talkies.

Police use walkie-talkies to help with parades.

Solve this problem.

1. Officers Adams, Bell, Cook, and Day are working with a parade. Officer Adams is in charge. The officers place themselves like this along the street.

They use their walkie-talkies to tell Officer Adams how far they are from him.

Officer Bell is 450 m away, Officer Cook is 700 m away, and Officer Day is 900 m away.
How far is Officer Bell from Officer Day?

PROBLEM SOLVING

Subtracting Amounts of Money

At the music store, a set of tapes costs $12.45. Records with the same music cost $8.90. How much more do the tapes cost?

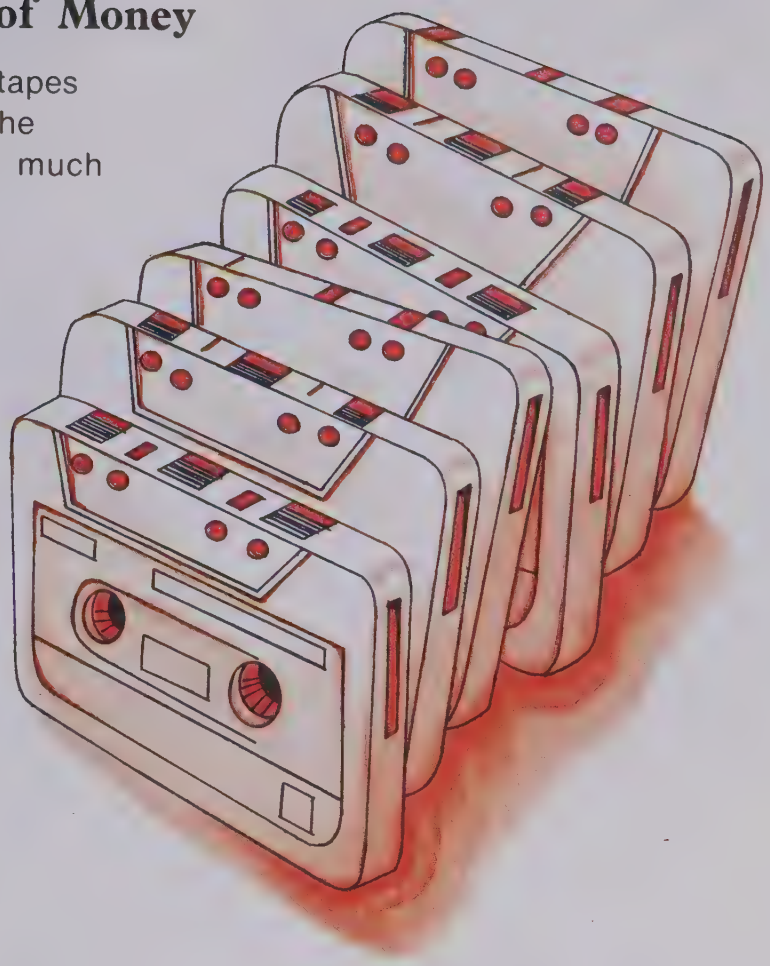
Subtract $12.45 − 8.90

Subtract the cents. Regroup when needed.

Then subtract the dollars.

$$\begin{array}{r} {\scriptstyle 1}\ {\scriptstyle 14} \\ \$12.\not{4}\not{5} \\ -\ 8.90 \\ \hline \$\ 3.55 \end{array}$$

The tapes cost $3.55 more than the records.



Exercises

The store has a sale.

1. The regular price for the records is $8.90. The sale price is $6.95. How much less is the sale price?
2. The regular price for the tapes is $12.45. The sale price is $9.29. How much less is the sale price?
3. The sale price for the tapes is $9.29. The sale price for the records is $6.95. How much more are the tapes?

Subtract.

4. $16.79 − 7.32	**5.** $12.43 − 9.23	
6. $13.66 − 5.63	**7.** $11.13 − 9.50	
8. $15.72 − 6.58	**9.** $11.18 − 4.74	
10. $18.38 − 8.75	**11.** $14.80 − 8.64	
12. $13.50 − 4.86	**13.** $15.07 − 9.32	

Using Addition to Check Subtraction

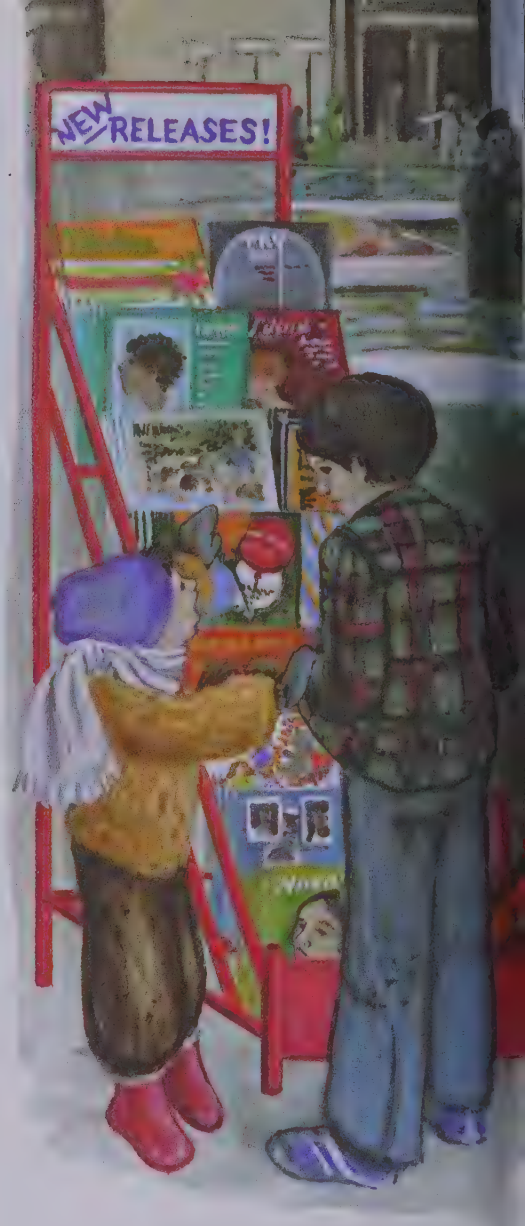
Subtract 726 and add to check.

$$\begin{array}{r} 726 \\ -\,478 \\ \hline \end{array}$$

Subtract. Add to check.

$$\begin{array}{r} {\scriptstyle 11} \\ {\scriptstyle 6\ \not{1}\ 16} \\ \not{7}\not{2}\not{6} \\ -\ 478 \\ \hline 248 \end{array} \qquad \begin{array}{r} {\scriptstyle 1\ \ 1} \\ 248 \\ +\ 478 \\ \hline 726 \end{array}$$

This sum should match the first number used in the subtraction. If they do not match, there is a mistake.



Working Together

Add to check each subtraction.
Do the subtraction again if you find a mistake.

1. Subtract. Add to check.

$$\begin{array}{r} 765 \\ -\,231 \\ \hline 534 \end{array} \qquad \begin{array}{r} 534 \\ +\,231 \\ \hline \end{array}$$

2. Subtract. Add to check.

$$\begin{array}{r} {\scriptstyle 5\ 11} \\ 13\not{0}\not{1} \\ -\ 524 \\ \hline 837 \end{array} \qquad \begin{array}{r} 837 \\ +\,524 \\ \hline \end{array}$$

3. Subtract. Add to check.

$$\begin{array}{r} {\scriptstyle 6\ 10} \\ 17\not{0}8 \\ -\ 743 \\ \hline 865 \end{array} \qquad \begin{array}{r} 865 \\ +\,743 \\ \hline \end{array}$$

Be careful!

Subtract. Add to check.

4. $\begin{array}{r} 294 \\ -\ 26 \\ \hline \end{array}$ **5.** $\begin{array}{r} 910 \\ -\,427 \\ \hline \end{array}$ **6.** $\begin{array}{r} 1336 \\ -\ 491 \\ \hline \end{array}$ **7.** $\begin{array}{r} \$19.16 \\ -\ 9.60 \\ \hline \end{array}$

Exercises

The table shows record sales for one month. Subtract to complete the table. Add to check each subtraction.

	1. "A" Records	2. "B" Records	3. "C" Records
Number at start of month	1735	1481	1360
Number at end of month	982	557	673
Number sold in the month	?	?	?

Solve. Add to check each subtraction.

4. 924 "B" records were sold. 687 "C" records were sold. How many more "B" records were sold?

5. 753 "A" records were sold. 924 "B" records were sold. How many fewer "A" records were sold?

Subtract. Add to check.

6. $\begin{array}{r} 71 \\ -\ 25 \\ \hline \end{array}$

7. $\begin{array}{r} 211 \\ -\ 59 \\ \hline \end{array}$

8. $\begin{array}{r} 779 \\ -\ 388 \\ \hline \end{array}$

9. $\begin{array}{r} 1592 \\ -\ 853 \\ \hline \end{array}$

10. $\begin{array}{r} \$8.33 \\ -\ 4.84 \\ \hline \end{array}$

11. $\begin{array}{r} \$14.62 \\ -\ 6.97 \\ \hline \end{array}$

Regrouping with Zeros

The Shreddies box shows that it holds 675 g (grams) of cereal. What other box holds enough cereal to make exactly 1 kg of cereal with the Shreddies?

Here are two ways to solve this problem:

1. Add the other amounts to 675 g and find the sum that equals 1000 g.
2. Subtract 1000 to find how much more is needed to make 1000 g.

$$\begin{array}{r} 1000 \\ -\ 675 \\ \hline \end{array}$$

To subtract, think of 1000 as 100 tens, 0 ones. Regroup as 99 tens, 10 ones.

$$\begin{array}{r} {}^{9}\,{}^{9}\,{}^{10} \\ \cancel{1000} \\ -\ 675 \\ \hline \end{array}$$

1 kilogram equals 1000 grams.
1 kg = 1000 g

Then subtract place by place.

$$\begin{array}{r} {}^{9}\,{}^{9}\,{}^{10} \\ \cancel{1000} \\ -\ 675 \\ \hline 325 \end{array}$$

To check that 325 g is the amount that goes with 675 g to make 1000 g, add

$$\begin{array}{r} 325 \\ +\ 675 \\ \hline \end{array}$$

325 g more are needed to make 1 kg of cereal.

There are 325 g of Rice Flakes. The Shreddies and Rice Flakes together make 1 kg of cereal.

Working Together

Regroup 1 thousand as 99 tens and 10 more ones. Then subtract.

1. 1000 − 525

2. 1003 − 186

Subtract. Regroup when needed.

3. 1000 − 796

4. 1100 − 842

5. 1004 − 373

6. \$10.00 − 6.04

Exercises

Subtract.

1. 1000 − 62

2. 1000 − 740

3. 1050 − 471

4. 1600 − 933

5. 1704 − 786

6. 1048 − 255

7. \$10.00 − 5.16

8. \$10.05 − 9.46

For each amount, how many more grams are needed to make 1 kg?

9. 350 g

10. 275 g

11. 450 g

12. 325 g

13. 525 g

14. 475 g

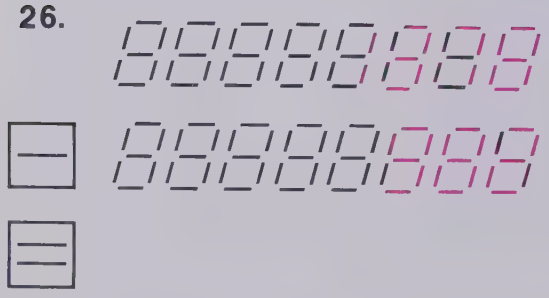
Practice

Subtract.

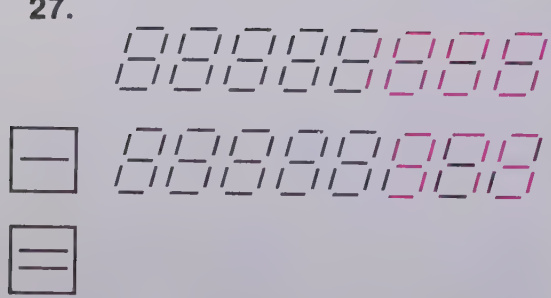
1. 67 − 42	**2.** 687 − 61	**3.** 554 − 250	**4.** 1377 − 863	**5.** 478 − 319
6. 283 − 59	**7.** 735 − 281	**8.** 64 − 45	**9.** 115 − 63	**10.** 1668 − 674
11. 1232 − 928	**12.** 154 − 86	**13.** 1938 − 943	**14.** 720 − 595	**15.** 1602 − 637
16. 1000 − 544	**17.** 1053 − 982	**18.** 403 − 177	**19.** 1002 − 483	**20.** 1050 − 891
21. $5.00 − 2.06	**22.** $10.00 − 9.69	**23.** $10.50 − 0.95	**24.** $12.25 − 7.60	**25.** $10.00 − 7.58

What would the calculator show for each difference?

26.



27.



You can solve the riddle
if you are a good subtracter.

When you study science,
I know you hear the notion
That sometime in the future
We'll be farming in the ocean.

I haven't been invented yet,
But surely I'll be needed
To mow the seaweed, dig the clams,
Have oyster beds well-seeded.

What kind of machine am I?

Answer: 838 873 387 787 783 378 838 837 783 383 378

Subtract to find the letters that
replace the numbers in the Answer.

A 1588 − 750	**B** 895 − 108	**C** 1246 − 409	**D** 690 − 313	**E** 903 − 165
G 1000 − 227	**I** 1687 − 809	**L** 819 − 41	**M** 1239 − 362	**O** 500 − 117
P 907 − 170	**R** 700 − 322	**S** 1000 − 127	**T** 1351 − 568	**U** 944 − 557

Finding the Missing Information

For each problem,

A. what information is missing?
B. tell how to find the missing information.
C. tell how to solve the problem.

Example:

Leslie baked some cookies. She ate 5 and left the others on the table. How many cookies did she bake?

How many cookies are on the table? ← missing information

Count them. ← how to find it

Add 5 and the number on the table to find how many cookies she baked. ← how to solve the problem

1. Ty wants to buy a model car. He has 10¢. How much more does he need for the model car?

2. There are 14 clean socks. The others need washing. How many socks are there?

3. Which book has more pages, your reader or this book? How many more?

4. Who is taller, the tallest boy or the tallest girl in your class? How much taller?

5. A box held 200 tissues when it was opened. How many tissues have been taken from the box?

6. Are there more girls or more boys absent from class today? How many more?

7. Each child in the room was given one apple. There were 8 apples left over. How many apples were there to give away?

8. Each bag holds 15 oranges. One bag is partly filled. How many more oranges will this bag hold?

9. Is the distance greater around your head or a friend's head? How much greater?

10. Kay has 25¢ left from her allowance. How much has Kay used from her allowance?

11. Which is greater, the distance from the top of your head to your heels, or from finger tip to finger tip with arms outstretched?

PROBLEM SOLVING

Checking Up

Subtract.

1. 458 − 125	**2.** 62 − 47	**3.** 336 − 142	**4.** 429 − 85
5. 631 − 363	**6.** 305 − 167	**7.** 200 − 88	**8.** 422 − 229
9. 1257 − 438	**10.** 1737 − 852	**11.** 1549 − 773	**12.** 1359 − 831
13. 1654 − 926	**14.** 1000 − 297	**15.** 1043 − 776	**16.** 1443 − 909
17. \$4.55 − 1.27	**18.** \$12.00 − 4.73	**19.** \$11.05 − 2.55	**20.** \$10.00 − 4.16

Solve.

21. The large tin has 625 mL of soup. The small tin has 450 mL of soup. How much more soup is there in the large tin?

22. There are 325 g of peanuts in the bowl. How many more grams are needed to make 1 kg (1000 g) of peanuts?

23. A jumbo jet can carry 365 passengers. There are 77 empty seats on one flight. How many passengers are on the flight?

24. On one trip the airplane flew 1475 km. It flew 855 km on a second trip. How much shorter was the second trip?

25. 1300 tickets were put on sale. Two days later 315 tickets were left. How many had been sold?

26. There are 1275 seats in the gym. 985 seats are taken. How many seats are not taken?

27. The regular price is \$8.75. The sale price is \$5.89. How much less is the sale price?

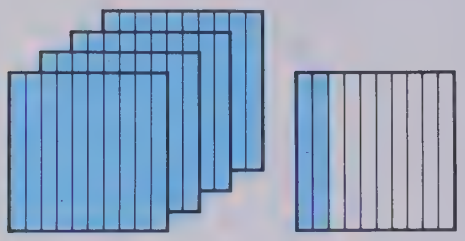
28. The sale price is \$5.89. How much money does a buyer get back from \$10.00?

29. A jacket costs \$9.90. Ron has saved \$7.25. How much more does Ron need for the jacket?

30. Don had \$11.40. He spent \$9.90 for the jacket. How much money does Don have left?

14 DECIMALS

Using Decimals to Show Wholes and Tenths – Review

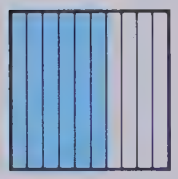


4 wholes and
2 of 10 equal parts
of another whole
is written

$4\frac{2}{10}$ or 4.2

four and two-tenths

ones	tenths
4	2



0 wholes and
6 of 10 equal parts
is written

$\frac{6}{10}$ or 0.6

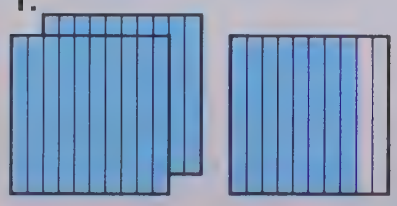
six-tenths

ones	tenths
0	6

Working Together

Give the decimal that shows how much is shaded.

1.



Write the decimals.

	ones	tenths
2.	8	4

3.

ones	tenths
0	9

4. six and two-tenths

5. eight-tenths

6. four and one-tenth

7. five and nine-tenths

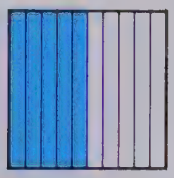
Write the words.

8. 2.7 **9.** 0.4 **10.** 3.0

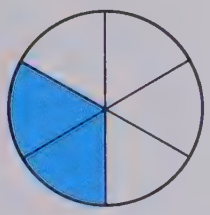
Exercises

For each picture that shows 10 equal parts, write a decimal to show how much is shaded.

1.

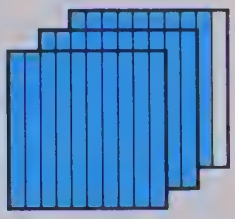


2.



3.

4.



Write the decimals.

	ones	tenths
5.	3	5

	ones	tenths
6.	0	7

7. three-tenths

8. two and six-tenths

9. one-tenth

10. four and eight-tenths

11. eight and one-tenth

12. five and five-tenths

Write the words.

13. 1.5 **14.** 0.1 **15.** 2.2

16. 0.9 **17.** 3.7 **18.** 4.3

Show each amount with a decimal.

19. Marty ate three-tenths of the pie.

20. Tina used two and six-tenths bottles of paint.

Add.

1.	36 + 22	**2.**	652 + 36	**3.**	430 + 541
4.	25 + 19	**5.**	281 + 32	**6.**	742 + 903
7.	78 + 25	**8.**	945 + 81	**9.**	527 + 647

Add. Remember to regroup 10 tenths as 1 one.

10.	3.6 + 2.2	**11.**	2.1 + 2.5	**12.**	3.2 + 0.5
13.	2.5 + 1.9	**14.**	4.3 + 2.7	**15.**	4.6 + 3.8
16.	6.8 + 2.5	**17.**	3.0 + 3.5	**18.**	4.5 + 0.7
19.	4.7 + 4.6	**20.**	2.3 + 5.1	**21.**	3.9 + 5.5

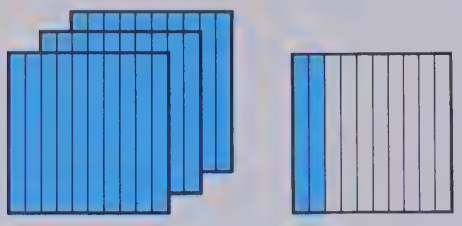
Subtract.

22.	49 − 23	**23.**	427 − 116	**24.**	756 − 545
25.	72 − 26	**26.**	111 − 70	**27.**	604 − 381
28.	831 − 764	**29.**	642 − 253	**30.**	703 − 488
31.	1659 − 912	**32.**	1390 − 679		

KEEPING SHARP

Subtracting Decimals

Subtract 1.5 from 3.2.

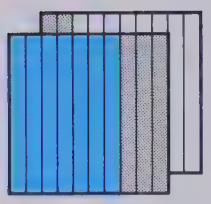


	ones	tenths
	3	2
−	1	5

Show 3.2 and 1.5 with their ones and tenths lined up. Show the greater number first.

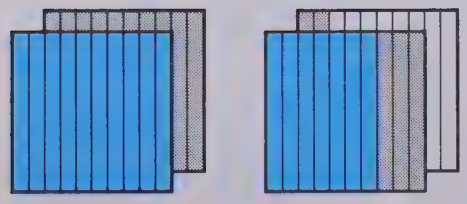
	2	12
	~~3~~	~~2~~
−	1	5

Cannot subtract 5 tenths from 2 tenths. Regroup 3 ones, 2 tenths as 2 ones, 12 tenths.



	2	12
	~~3~~	~~2~~
−	1	5
		7

Subtract the tenths.



	2	12
	~~3~~	~~2~~
−	1	5
	1	7

Subtract the ones and place the decimal point.

1.5 subtracted from 3.2 is 1.7.

Working Together

Follow the steps.

1. $\begin{array}{r} 4.8 \\ -\ 2.3 \\ \hline \end{array}$

Subtract tenths.

Subtract ones.

2. $\begin{array}{r} 6.2 \\ -\ 1.7 \\ \hline \end{array}$

Regroup to show 1 less one and 10 more tenths.

Subtract tenths.

Subtract ones.

Subtract.

3. $\begin{array}{r} 5.8 \\ -\ 4.2 \\ \hline \end{array}$ **4.** $\begin{array}{r} 5.3 \\ -\ 3.5 \\ \hline \end{array}$ **5.** $\begin{array}{r} 4.5 \\ -\ 0.8 \\ \hline \end{array}$

Exercises

Subtract.

1. $6.7 - 5.3$ **2.** $2.9 - 0.2$

3. $4.4 - 2.8$ **4.** $6.0 - 2.7$

5. $\begin{array}{r} 5.2 \\ -\ 4.1 \\ \hline \end{array}$ **6.** $\begin{array}{r} 4.7 \\ -\ 0.2 \\ \hline \end{array}$ **7.** $\begin{array}{r} 7.4 \\ -\ 4.1 \\ \hline \end{array}$

8. $\begin{array}{r} 7.3 \\ -\ 3.6 \\ \hline \end{array}$ **9.** $\begin{array}{r} 7.0 \\ -\ 2.5 \\ \hline \end{array}$ **10.** $\begin{array}{r} 8.6 \\ -\ 4.1 \\ \hline \end{array}$

11. $\begin{array}{r} 9.5 \\ -\ 7.6 \\ \hline \end{array}$ **12.** $\begin{array}{r} 0.8 \\ -\ 0.5 \\ \hline \end{array}$ **13.** $\begin{array}{r} 6.1 \\ -\ 3.3 \\ \hline \end{array}$

14. $\begin{array}{r} 4.2 \\ -\ 1.9 \\ \hline \end{array}$ **15.** $\begin{array}{r} 9.1 \\ -\ 1.7 \\ \hline \end{array}$ **16.** $\begin{array}{r} 7.7 \\ -\ 6.5 \\ \hline \end{array}$

Greta	Stacy
9.0	7.5
6.5	8.5
8.5	5.5
7.0	9.0

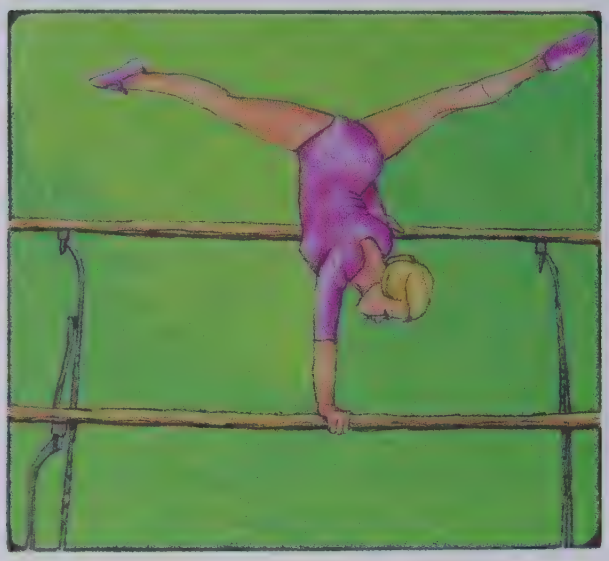
Greta and Stacy used tenths to score their dives in practice.

17. On her first dive, Greta scored 9.0. Stacy scored 7.5. How many more points did Greta score?

*__18.__ The picture shows the scores on each of four dives. Who was ahead after four dives? By how much?

Practice

Tracy and Peg were in four events in the gymnastics meet. A perfect score in one event is 10.0.



Uneven Bars

Tracy	7.5
Peg	8.5

Vault

Tracy	8.0
Peg	6.5

1. Who had the higher score on the uneven bars? How much higher was it?
2. Who had the lower score for the vault? How much lower was it?
3. What was Tracy's total score after the first two events?
4. What was Peg's total score after the first two events?
5. Who had the higher total score after two events? How much higher was it?
6. In which event did Peg earn her best score? How much less than a perfect 10.0 was it?
7. In which event did Tracy earn her best score? How much less than a perfect 10.0 was it?
8. Who had the lowest score in any event? How much less than a perfect 10.0 was the score?

Balance Beam

Tracy	7.5
Peg	9.5

Floor Exercises

Tracy	8.5
Peg	7.5

9. What were Tracy's and Peg's total scores after three events?

10. Who was ahead after three events? By how much?

11. What were Tracy's and Peg's total scores after four events?

12. Who had the higher total score after four events? How much higher was it?

***13.** Thelma's scores for four events were all the same. Her total was the same as Peg's total. How much did Thelma score in each event?

Add or subtract.

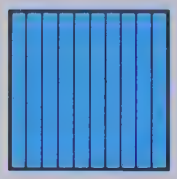
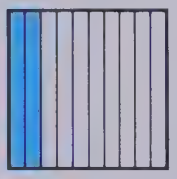
14. $4.4 - 2.1$ **15.** $2.3 + 5.4$

16. $0.4 + 2.9$ **17.** $1.2 - 0.6$

18. $7.8 - 1.4$ **19.** $2.8 + 1.7$

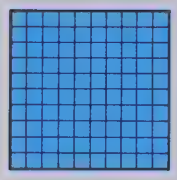
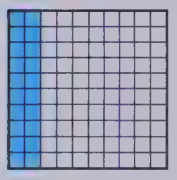
20.	$5.2 - 4.3$	**21.**	$5.7 + 3.4$	**22.**	$1.1 - 0.5$
23.	$5.2 + 4.4$	**24.**	$3.5 + 0.8$	**25.**	$6.0 - 3.4$
26.	$3.2 - 2.4$	**27.**	$4.1 + 3.9$	**28.**	$5.7 - 4.1$
29.	$1.9 + 2.5$	**30.**	$7.1 - 3.9$	**31.**	$6.6 + 1.7$

Using Decimals to Show Wholes and Hundredths

1 whole and
2 of 10 equal parts
of another whole
is written

$1\frac{2}{10}$ or 1.2

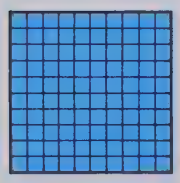



1 whole and
20 of 100 equal parts
of another whole
is written

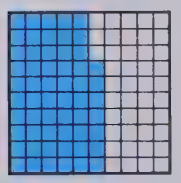
$1\frac{20}{100}$ or 1.20

one and twenty-hundredths

1 whole



57 of 100
equal parts

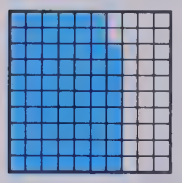


Write

$1\frac{57}{100}$ or 1.57

0 wholes

68 of 100
equal parts

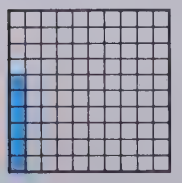


Write

$\frac{68}{100}$ or 0.68

0 wholes

6 of 100
equal parts

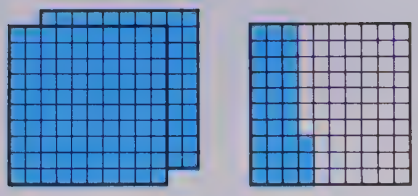


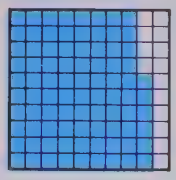
Write

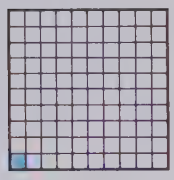
$\frac{6}{100}$ or 0.06

Working Together

How many wholes?
How many hundredths?
Give the decimal that shows how much is shaded.

1. 

2. 

3. 

Write the decimals.

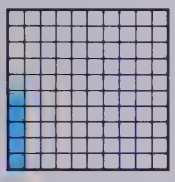
4. three and seventy-five hundredths
5. one and four-hundredths
6. thirty-hundredths
7. seven-hundredths

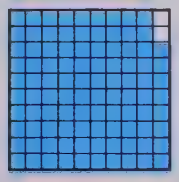
Write the words.

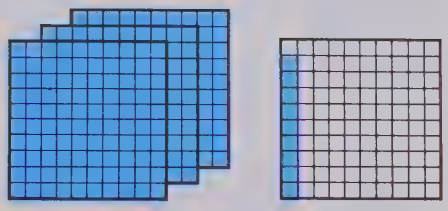
8. 2.59 **9.** 0.75 **10.** 3.06 **11.** 0.04

Exercises

Write the decimal that shows how much is shaded.

1. 

2. 

3. 

Write the decimals.

4. four and eleven-hundredths
5. thirty-three hundredths
6. two and five-hundredths
7. two-hundredths
8. two and forty-hundredths
9. three and nineteen-hundredths
10. four and one-hundredth
11. twenty-hundredths

Write the words.

12. 5.75 **13.** 3.60
14. 0.03 **15.** 2.22
16. 4.04 **17.** 0.18

In each group, find two names for the same number.

18. one-hundredth, 100, 0.10, 0.01
19. ten-hundredths, 0.10, 10, 1.00

Decimals and Money

100 cents

are worth

$1.00

one dollar

1 cent
(1¢)

is worth one-hundredth of a dollar or $0.01

5 cents
(5¢)

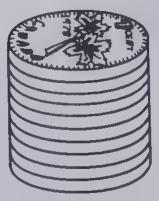
is worth

five-hundredths
of a dollar

or $0.05

10 cents
(10¢)

is worth



ten-hundredths
of a dollar

or $0.10

25 cents
(25¢)

is worth

twenty-five hundredths
of a dollar

or $0.25

Working Together

Show how many cents (¢) each group is worth.
Then show each amount another way
using the dollar sign ($) and a decimal.

1.

2.

3.

4.

Exercises

Show how many cents (¢) each group is worth.
Then show each amount another way
using the dollar sign ($) and a decimal.

1.

2.

Copy and complete the table.

	Dollars	Quarters	Dimes	Nickels	Pennies	Value (¢)	Value ($)
3.	1	1	1			135¢	$1.35
4.		1	1	1		?	?
5.	1				5	?	?
6.		4				?	?
7.			3	4	5	?	?
8.		3	3	3	3	?	?
***9.**	?	?	?	?	?	72¢	?
***10.**	?	?	?	?	?	?	$1.18

Metres, Centimetres, and Decimals

John is running the obstacle course. This obstacle is 1 m and 15 cm high. A decimal can show this height in metres.

1 cm is 1 of 100 equal parts of a metre.
15 cm is 15 of 100 equal parts of a metre.

1 m and 15 cm can be written **1.15 m** (1 and 15-hundredths metres)

The obstacle is 1.15 m high.

Working Together

Complete these tables.

1.	123 cm	1 m and 23 cm	
2.	105 cm	? m and ? cm	
3.	87 cm	? m and ? cm	
4.		2 m and 31 cm	2.31 m
5.		1 m and 7 cm	? m
6.		0 m and 25 cm	? m
7.	312 cm		3.12 m
8.	40 cm		? m
9.	1 cm		? m

10.	1.32 m	1 m and 32 cm	
11.	2.80 m	? m and ? cm	
12.	0.04 m	? m and ? cm	
13.		3 m and 21 cm	3.21 cm
14.		1 m and 8 cm	? cm
15.		0 m and 75 cm	? cm
16.	2.13 m		213 cm
17.	0.94 m		? cm
18.	1.01 m		? cm

Exercises

Copy and continue each table.

1.

100 cm	1 m and 0 cm	1.00 m
200 cm	2 m and 0 cm	2.00 m

Continue to 600 cm.

2.

170 cm	1 m and 70 cm	1.70 m
180 cm	1 m and 80 cm	1.80 m

Continue to 220 cm.

3.

297 cm	2 m and 97 cm	2.97 m
298 cm	2 m and 98 cm	2.98 m

Continue to 302 cm.

Copy and complete this table.

4.	165 cm	1 m and 65 cm	1.65 m
5.	318 cm	? m and ? cm	? m
6.	106 cm	? m and ? cm	? m
7.	24 cm	? m and ? cm	? m
8.	? cm	1 m and 2 cm	? m
9.	? cm	3 m and 77 cm	? m
10.	? cm	0 m and 15 cm	? m
11.	? cm	? m and ? cm	1.30 m
12.	? cm	? m and ? cm	1.09 m
13.	? cm	? m and ? cm	0.77 m

Measure and write each length in centimetres. Then use a decimal and write each length in metres.

14. your height

15. how high you can reach

16. how far apart you can spread your arms

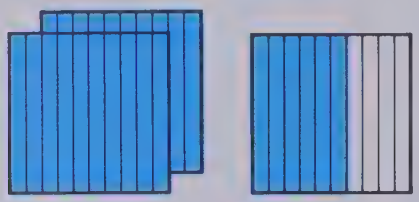
17. how far you can step

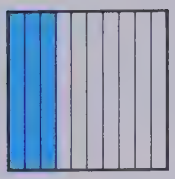
18. Write the height of the high-jump bar in metres.

19. Greg Joy of Canada won an Olympic medal with a high jump of 2 m and 23 cm. Write this height in metres.

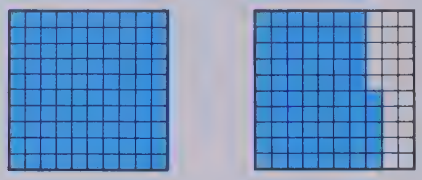
Checking Up

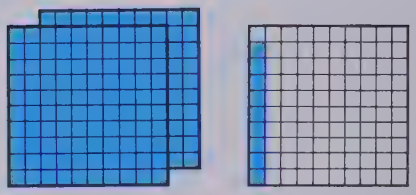
Write a decimal to show
how much is shaded. Use tenths.

1. 

2. 

Write a decimal to show
how much is shaded. Use hundredths.

3. 

4. 

Write the decimals.

5. three and four-tenths

6. three-hundredths

Write the words.

7. 4.5 **8.** 0.7 **9.** 2.57 **10.** 1.02

Show how many cents (¢) each group of coins is worth. Then show each amount another way using the dollar sign ($) and a decimal.

11.

12.

Use a decimal and write each length in metres.

13. 2 m and 36 cm **14.** 1 m and 4 cm **15.** 49 cm **16.** 325 cm

Write each length in centimetres.

17. 1 m and 67 cm **18.** 2 m and 5 cm **19.** 2.35 m **20.** 0.89 m

Add.

21. $\begin{array}{r} 2.4 \\ +\,3.2 \\ \hline \end{array}$ **22.** $\begin{array}{r} 1.6 \\ +\,2.7 \\ \hline \end{array}$ **23.** $\begin{array}{r} 3.8 \\ +\,1.6 \\ \hline \end{array}$

Subtract.

24. $\begin{array}{r} 4.7 \\ -\,2.3 \\ \hline \end{array}$ **25.** $\begin{array}{r} 7.1 \\ -\,1.6 \\ \hline \end{array}$ **26.** $\begin{array}{r} 6.6 \\ -\,3.7 \\ \hline \end{array}$

Add.

1. 452 + 426	**2.** 305 + 43	**3.** 246 + 430	**4.** $2.13 + 0.53	**5.** $4.31 + 1.47
6. 172 + 35	**7.** 226 + 328	**8.** 491 + 256	**9.** $6.17 + 2.48	**10.** $8.53 + 2.12
11. 528 + 617	**12.** 940 + 97	**13.** 236 + 575	**14.** $5.81 + 7.93	**15.** $8.42 + 4.67
16. 320 152 + 114	**17.** 375 63 + 321	**18.** 28 118 + 37	**19.** $8.15 3.47 + 7.36	**20.** $6.61 4.90 + 7.56

Subtract.

21. 367 − 32	**22.** 397 − 236	**23.** 856 − 424	**24.** $5.77 − 0.13	**25.** $9.56 − 2.35
26. 792 − 477	**27.** 133 − 51	**28.** 309 − 161	**29.** $6.94 − 2.57	**30.** $1.28 − 0.36
31. 1253 − 426	**32.** 1317 − 975	**33.** 1090 − 225	**34.** $16.49 − 8.59	**35.** $13.35 − 6.84
36. 1000 − 573	**37.** 1068 − 181	**38.** 1205 − 306	**39.** $10.00 − 6.41	**40.** $10.04 − 8.93

Multiply.

41. 4×2	**42.** 3×3	**43.** 5×1	**44.** 2×3	**45.** 1×4
46. 7×2	**47.** 4×4	**48.** 3×4	**49.** 5×3	**50.** 2×5
51. 8×4	**52.** 6×5	**53.** 5×4	**54.** 4×5	**55.** 8×3

Divide.

56. $6 \div 3$	**57.** $8 \div 2$	**58.** $3 \div 3$	**59.** $4 \div 2$
60. $16 \div 4$	**61.** $15 \div 5$	**62.** $10 \div 2$	**63.** $18 \div 3$
64. $21 \div 3$	**65.** $20 \div 5$	**66.** $28 \div 4$	**67.** $27 \div 3$
68. $30 \div 5$	**69.** $36 \div 4$	**70.** $45 \div 5$	**71.** $32 \div 4$

KEEPING SHARP

Checking Skills

Add.

1.	431 + 46	**2.** 543 + 246
3.	647 + 327	**4.** 428 + 538
5.	242 + 62	**6.** 386 + 142
7.	276 + 194	**8.** 345 + 58
9.	512 + 544	**10.** 621 + 852
11.	911 + 337	**12.** 735 + 653
13.	915 + 657	**14.** 863 + 252
15.	947 + 81	**16.** 753 + 917
17.	805 467 + 25	**18.** 371 94 + 923
19.	$2.48 + 8.35	**20.** $3.63 + 9.63
21.	$4.24 2.60 + 3.53	**22.** $6.28 7.38 + 1.18

Subtract.

1.	565 − 110	**2.** 258 − 35
3.	781 − 46	**4.** 381 − 242
5.	758 − 476	**6.** 513 − 43
7.	310 − 175	**8.** 678 − 389
9.	1329 − 619	**10.** 1374 − 523
11.	1266 − 632	**12.** 1477 − 806
13.	1418 − 933	**14.** 1496 − 629
15.	1481 − 758	**16.** 1383 − 890
17.	1000 − 603	**18.** 1057 − 583
19.	1501 − 923	**20.** 1002 − 435
21.	$15.67 − 6.29	**22.** $10.00 − 1.87
23.	$10.15 − 7.54	**24.** $11.20 − 6.70

Multiply.

1.	3×3	**2.**	4×2
3.	1×4	**4.**	2×3
5.	2×2	**6.**	3×5
7.	4×4	**8.**	6×3
9.	7×2	**10.**	4×3
11.	9×3	**12.**	7×4
13.	5×4	**14.**	7×3
15.	4×5	**16.**	6×5
17.	8×5	**18.**	8×4
19.	9×4	**20.**	9×5

Divide.

1.	$8 \div 2$	**2.**	$4 \div 2$
3.	$9 \div 3$	**4.**	$5 \div 5$
5.	$8 \div 1$	**6.**	$18 \div 3$
7.	$16 \div 4$	**8.**	$15 \div 5$
9.	$12 \div 3$	**10.**	$16 \div 2$
11.	$21 \div 3$	**12.**	$25 \div 5$
13.	$24 \div 4$	**14.**	$27 \div 3$
15.	$20 \div 5$	**16.**	$35 \div 5$
17.	$32 \div 4$	**18.**	$45 \div 5$
19.	$40 \div 5$	**20.**	$36 \div 4$

Solve.

1. 583 swimming tickets were sold in July. 735 were sold in August. How many tickets were sold in July and August?

2. 1318 people used the pool. 550 were adults. How many were children?

3. Louie bought a volleyball for $4.68. How much did he get back from $10.00?

4. A basketball costs $7.89. The hoop and net cost $3.50. How much for everything?

5. The store had a sale on 1005 tennis balls. After two days, 87 were left. How many tennis balls were sold?

6. 118 women, 96 men and 92 children bought the tennis balls. How many bought tennis balls in all?

7. There are 15 girls. 3 are on each team. How many teams are there?

8. There are 4 events with 3 prizes in each event. How many prizes are there in all?

9. The children stand in 3 lines. There are 5 in each line. How many children are there?

10. The 20 boys are on 4 teams. The teams are equal in size. How many are on each team?

11. Each of the 7 girls has 5 pennies. How many pennies do the girls have?

12. The 4 boys share 28 pennies equally. How many pennies does each boy get?

15 MULTIPLICATION

Showing Multiplication

There are different ways to show that the product of 3 and 5 is 15.

It can be written four ways:

$3 \times 5 = 15$

$5 \times 3 = 15$

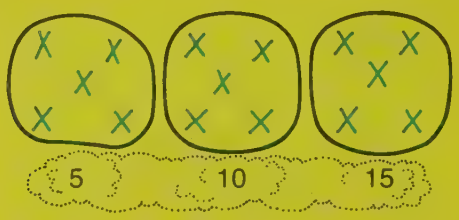
$$\begin{array}{r} 5 \\ \times\ 3 \\ \hline 15 \end{array} \qquad \begin{array}{r} 3 \\ \times\ 5 \\ \hline 15 \end{array}$$

No matter how it's shown, two numbers always have the same product.

It can be shown with a picture:

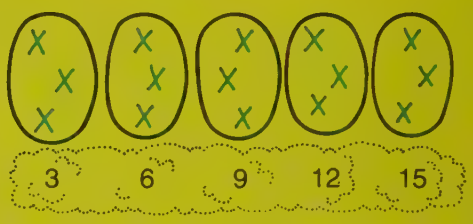
Draw 3 groups of 5.

Count by 5's.



Draw 5 groups of 3.

Count by 3's.



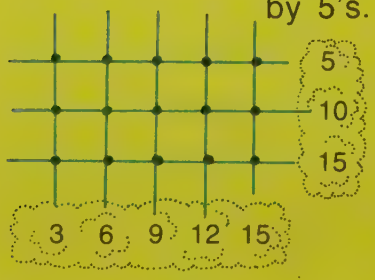
Draw 3 jumps of 5 on a number line.

Draw 5 jumps of 3 on a number line.

Draw 3 rows, 5 columns of dots.

Count by 5's.

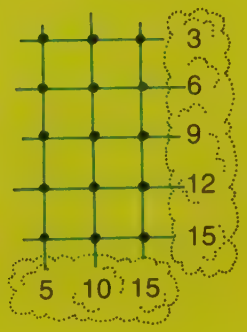
Count by 3's.



Draw 5 rows, 3 columns of dots.

Count by 3's.

Count by 5's.



Working Together

Draw groups to show
each product two ways.

Example: For the product of 4 and 3, draw

1. Show the product of 5 and 2.

2. Show the product of 3 and 6.

Draw number lines and show
each product two ways.

Example: For the product of 3 and 2, draw

3. Show the product of 2 and 4.

4. Show the product of 7 and 3.

Draw two arrays that show
the product of this pair.

5. 3 and 8

Write the product
of this pair four ways.

6. 6 and 5

Exercises

Draw groups to show the product of each pair
two ways. Write each product four ways.

1. 6 and 2 **2.** 4 and 1 **3.** 5 and 4 **4.** 3 and 7

Draw number lines and show the product of each pair
two ways. Write each product four ways.

5. 3 and 2 **6.** 1 and 6 **7.** 6 and 3 **8.** 2 and 8

Draw two arrays that show the product of
each pair. Write each product four ways.

9. 3 and 4 **10.** 8 and 1 **11.** 7 and 5 **12.** 2 and 9

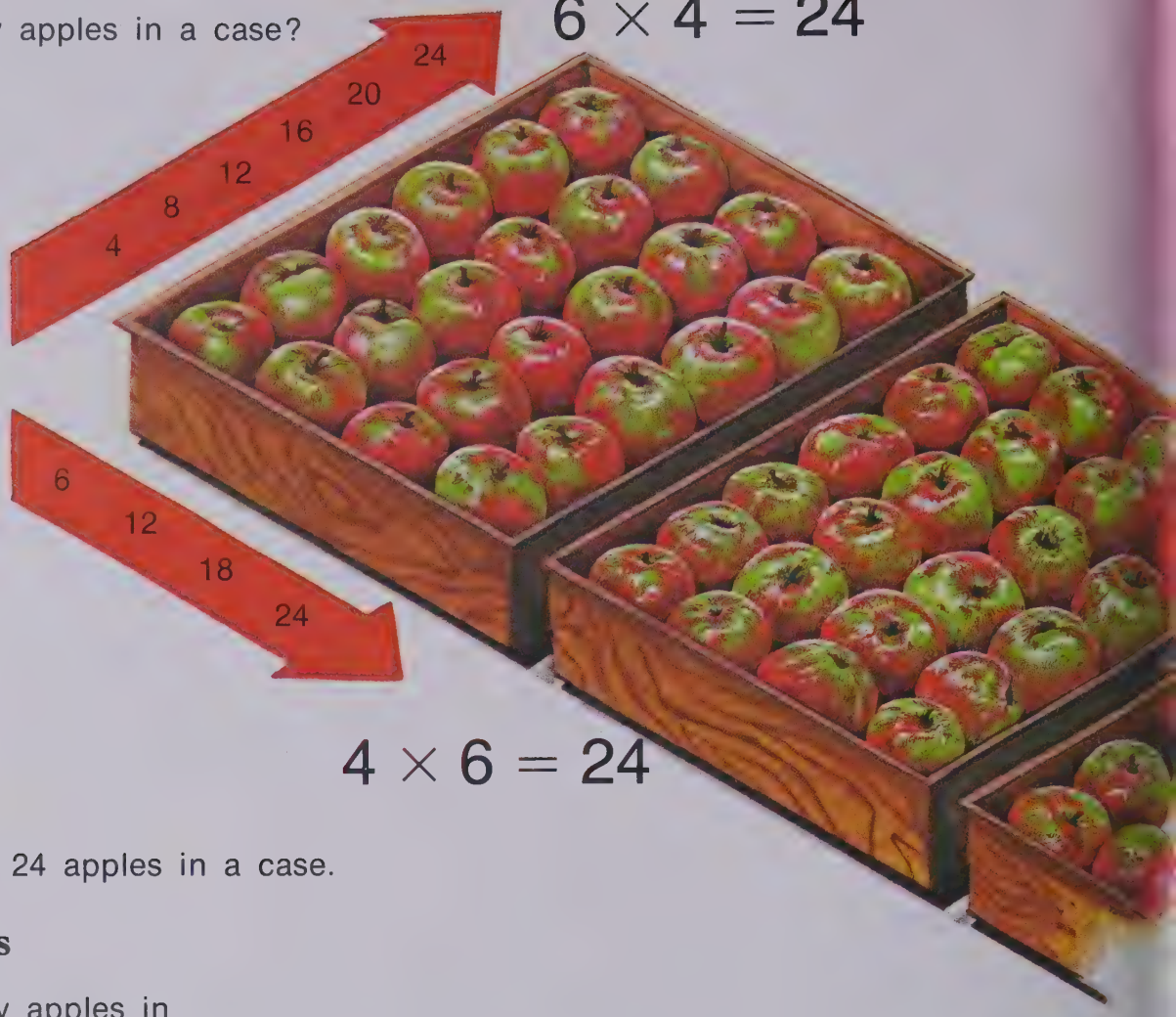
Multiply. Draw a picture if you need to.

13. $\begin{array}{r} 2 \\ \times 7 \\ \hline \end{array}$ **14.** $\begin{array}{r} 4 \\ \times 4 \\ \hline \end{array}$ **15.** $\begin{array}{r} 9 \\ \times 3 \\ \hline \end{array}$ **16.** $\begin{array}{r} 1 \\ \times 8 \\ \hline \end{array}$ **17.** 7×4 **18.** 5×5

6 as a Factor

How many apples in a case?

$6 \times 4 = 24$



Count 6 fours:

Count 4 sixes:

$4 \times 6 = 24$

There are 24 apples in a case.

Exercises

How many apples in

1. 1 row of 6?
2. 3 rows of 6?
3. 5 rows of 6?
4. 7 rows of 6?
5. 9 rows of 6?
6. 0 rows of 6?

Multiply. Draw a picture if you need to.

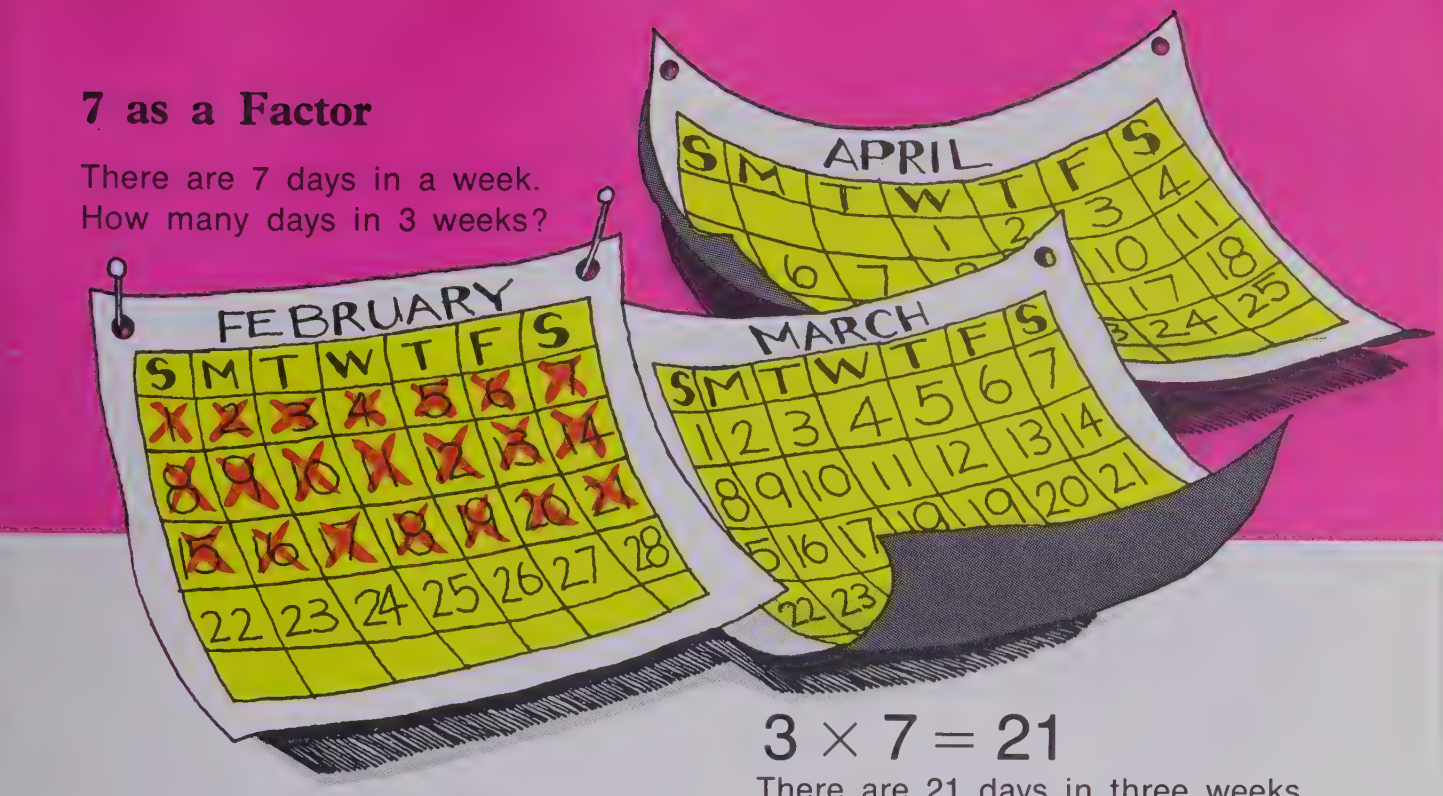
7. 8×6
8. 9×6
9. 6×6
10. 2×6
11. 1×6
12. 7×6
13. 5×6
14. 0×6
15. 4×6
16. 3×6

17. $\begin{array}{r} 6 \\ \times 3 \\ \hline \end{array}$
18. $\begin{array}{r} 6 \\ \times 9 \\ \hline \end{array}$
19. $\begin{array}{r} 6 \\ \times 1 \\ \hline \end{array}$
20. $\begin{array}{r} 6 \\ \times 7 \\ \hline \end{array}$
21. $\begin{array}{r} 3 \\ \times 6 \\ \hline \end{array}$
22. $\begin{array}{r} 1 \\ \times 6 \\ \hline \end{array}$

23. $\begin{array}{r} 6 \\ \times 8 \\ \hline \end{array}$
24. $\begin{array}{r} 5 \\ \times 6 \\ \hline \end{array}$
25. $\begin{array}{r} 6 \\ \times 0 \\ \hline \end{array}$
26. $\begin{array}{r} 2 \\ \times 6 \\ \hline \end{array}$
27. $\begin{array}{r} 6 \\ \times 4 \\ \hline \end{array}$
28. $\begin{array}{r} 6 \\ \times 6 \\ \hline \end{array}$

7 as a Factor

There are 7 days in a week.
How many days in 3 weeks?



$3 \times 7 = 21$

There are 21 days in three weeks.

Working Together

Continue the patterns and complete this table.

1.

Number of weeks	1	2	3	4	?	?	?	?	?
Days in each week	7	7	7	?	?	?	?	?	?
Days in all	7	14	?	?	?	?	?	?	?

Exercises

Multiply.

1. 3×7 **2.** 5×7 **3.** 8×7 **4.** 2×7 **5.** 4×7

6. 6×7 **7.** 7×7 **8.** 0×7 **9.** 9×7 **10.** 1×7

11. $\begin{array}{r} 7 \\ \times 6 \\ \hline \end{array}$ **12.** $\begin{array}{r} 7 \\ \times 1 \\ \hline \end{array}$ **13.** $\begin{array}{r} 3 \\ \times 7 \\ \hline \end{array}$ **14.** $\begin{array}{r} 7 \\ \times 7 \\ \hline \end{array}$ **15.** $\begin{array}{r} 7 \\ \times 4 \\ \hline \end{array}$ **16.** $\begin{array}{r} 1 \\ \times 7 \\ \hline \end{array}$

17. $\begin{array}{r} 7 \\ \times 8 \\ \hline \end{array}$ **18.** $\begin{array}{r} 7 \\ \times 0 \\ \hline \end{array}$ **19.** $\begin{array}{r} 7 \\ \times 9 \\ \hline \end{array}$ **20.** $\begin{array}{r} 6 \\ \times 7 \\ \hline \end{array}$ **21.** $\begin{array}{r} 4 \\ \times 7 \\ \hline \end{array}$ **22.** $\begin{array}{r} 7 \\ \times 3 \\ \hline \end{array}$

Practice

Multiply.

1. 2×6 **2.** 2×7 **3.** 3×7 **4.** 3×6 **5.** 4×6

6. 6×5 **7.** 7×5 **8.** 7×6 **9.** 6×6 **10.** 6×7 **11.** 7×7

Copy and complete the patterns.

12. 6, 12, 18, 24, ▒, ▒, ▒, 48, ▒

13. 7, 14, ▒, 28, ▒, ▒, 49, ▒, ▒

Copy and complete these multiplication tables.

14.

×	6	7
4	24	
5		

15.

×	6	7
6		
7		

16.

×	6
1	
2	
3	
4	
5	
6	
7	
8	
9	

17.

×	7
1	
2	
3	
4	
5	
6	
7	
8	
9	

18.

×	3	6	0	7	2
5	15				
1					
7					
4					
6					

Complete.

19. $2 \times ▒ = 12$ **20.** $3 \times ▒ = 21$ **21.** $8 \times ▒ = 48$ **22.** $▒ \times 7 = 49$

23. $7 \times ▒ = 42$ **24.** $6 \times ▒ = 42$ **25.** $▒ \times 6 = 0$ **26.** $1 \times ▒ = 7$

Copy and complete these multiplication tables.

27.

×	6	
2	12	
	18	21

28.

×	4	
4		24
		36

29.

×	1	6
		42
3		

30.

×	5	7
		49
	30	

Write $<$, $>$, or $=$ to complete each sentence.

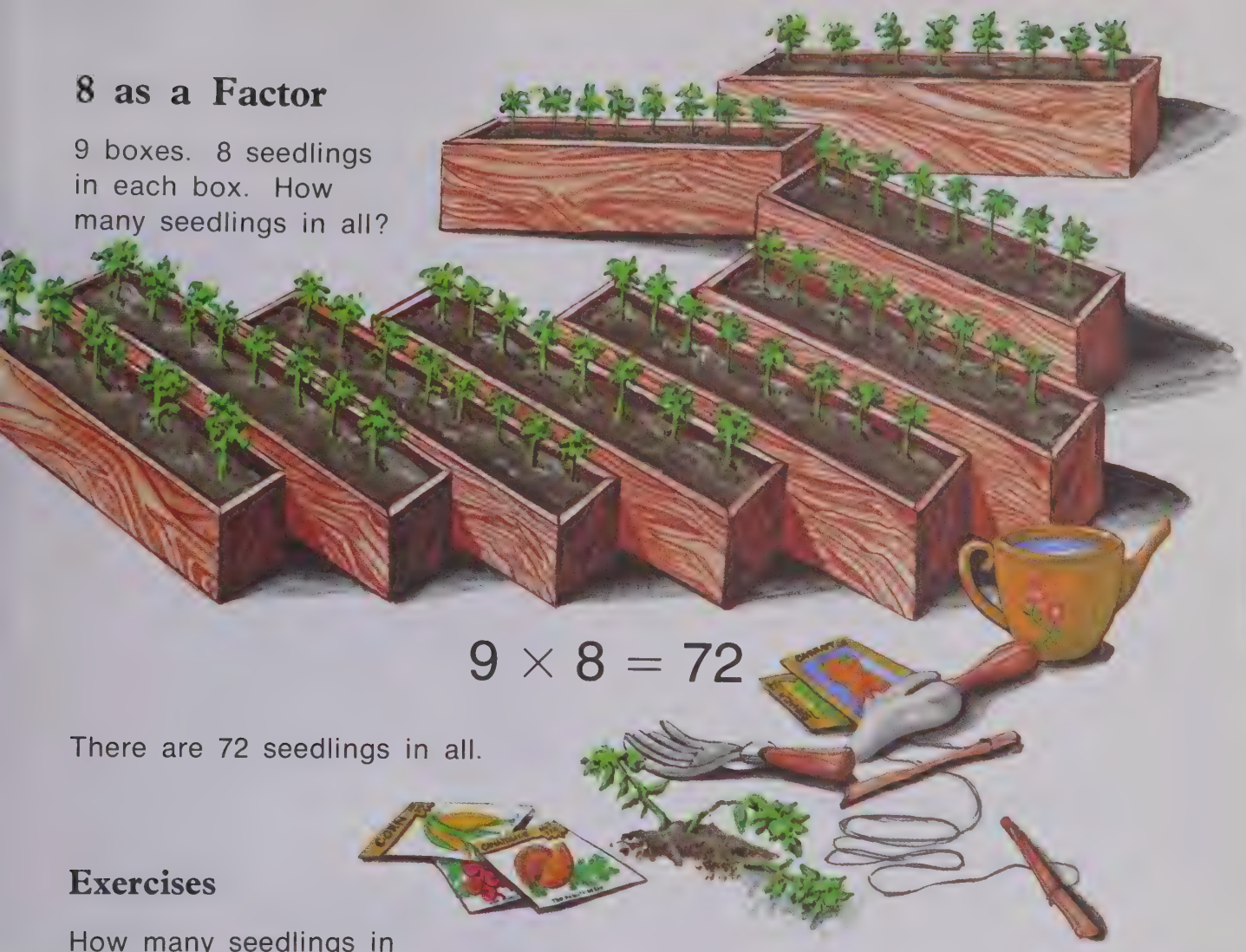
31. $7 \times 0 ◯ 7 + 0$ **32.** $6 \times 3 ◯ 3 \times 6$ **33.** $7 \times 2 ◯ 8 + 6$

34. $4 \times 6 ◯ 3 \times 7$ **35.** $7 \times 1 ◯ 7$ **36.** $7 \times 5 ◯ 6 \times 6$

37. $6 \times 1 ◯ 6 + 1$ **38.** $6 \times 5 ◯ 7 \times 4$ **39.** $8 \times 3 ◯ 6 \times 4$

8 as a Factor

9 boxes. 8 seedlings in each box. How many seedlings in all?



$$9 \times 8 = 72$$

There are 72 seedlings in all.

Exercises

How many seedlings in

1. 2 boxes? **2.** 4 boxes? **3.** 6 boxes? **4.** 8 boxes? **5.** 0 boxes?

Multiply.

6. 1×8 **7.** 3×8 **8.** 5×8 **9.** 7×8 **10.** 8×7

11. 8×8 **12.** 8×5 **13.** 8×0 **14.** 8×3 **15.** 8×6

16. $\begin{array}{r} 8 \\ \times\, 4 \\ \hline \end{array}$ **17.** $\begin{array}{r} 8 \\ \times\, 9 \\ \hline \end{array}$ **18.** $\begin{array}{r} 8 \\ \times\, 2 \\ \hline \end{array}$ **19.** $\begin{array}{r} 8 \\ \times\, 5 \\ \hline \end{array}$ **20.** $\begin{array}{r} 8 \\ \times\, 7 \\ \hline \end{array}$ **21.** $\begin{array}{r} 8 \\ \times\, 3 \\ \hline \end{array}$

22. $\begin{array}{r} 1 \\ \times\, 8 \\ \hline \end{array}$ **23.** $\begin{array}{r} 8 \\ \times\, 6 \\ \hline \end{array}$ **24.** $\begin{array}{r} 4 \\ \times\, 8 \\ \hline \end{array}$ **25.** $\begin{array}{r} 8 \\ \times\, 0 \\ \hline \end{array}$ **26.** $\begin{array}{r} 6 \\ \times\, 8 \\ \hline \end{array}$ **27.** $\begin{array}{r} 2 \\ \times\, 8 \\ \hline \end{array}$

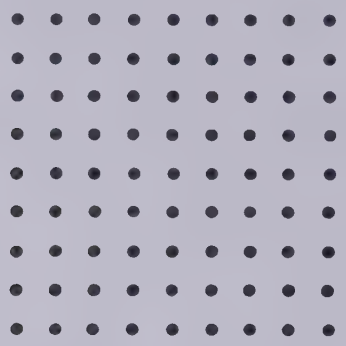
Complete.

28. $\square \times 8 = 24$ **29.** $\square \times 8 = 8$ **30.** $\square \times 2 = 16$ **31.** $8 \times \square = 56$

32. $8 \times \square = 24$ **33.** $8 \times \square = 40$ **34.** $8 \times \square = 48$ **35.** $8 \times \square = 32$

Finding Products with Factors to 9

This array shows $9 \times 9 = 81$.
You can cover rows and columns to show other products.



$$9 \times 9 = 81$$

This shows the product of 6 and 8.

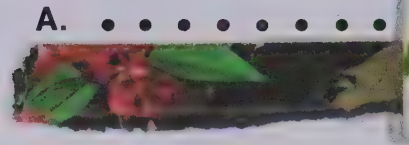
$$6 \times 8 = 48$$

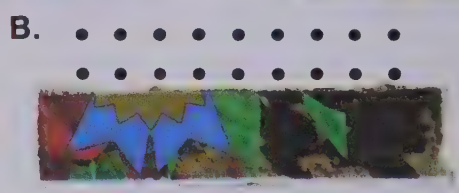
Working Together

Name the picture that shows each product. Then show each product in a multiplication sentence.

1. 1×8 **2.** 2×9

3. 9×3 **4.** 8×2





Use cards on the array above to find each product.

5. $\begin{array}{r} 9 \\ \times 6 \\ \hline \end{array}$ **6.** $\begin{array}{r} 9 \\ \times 8 \\ \hline \end{array}$ **7.** $\begin{array}{r} 8 \\ \times 9 \\ \hline \end{array}$

Complete the table.

8.

Number of rows	1	3	5	7	9
Seeds in each row	9	9	9	9	9
Seeds in all	?	?	?	?	?

Exercises

Multiply. Use cards on the 9×9 array if you need to.

1. 3×9 **2.** 4×9 **3.** 7×9 **4.** 9×1 **5.** 8×3

6. 3×8 **7.** 9×9 **8.** 8×8 **9.** 7×7 **10.** 9×0

11. $\begin{array}{r} 2 \\ \times 9 \\ \hline \end{array}$ **12.** $\begin{array}{r} 9 \\ \times 5 \\ \hline \end{array}$ **13.** $\begin{array}{r} 9 \\ \times 1 \\ \hline \end{array}$ **14.** $\begin{array}{r} 5 \\ \times 9 \\ \hline \end{array}$ **15.** $\begin{array}{r} 8 \\ \times 4 \\ \hline \end{array}$ **16.** $\begin{array}{r} 8 \\ \times 7 \\ \hline \end{array}$

17. $\begin{array}{r} 6 \\ \times 8 \\ \hline \end{array}$ **18.** $\begin{array}{r} 6 \\ \times 9 \\ \hline \end{array}$ **19.** $\begin{array}{r} 8 \\ \times 5 \\ \hline \end{array}$ **20.** $\begin{array}{r} 8 \\ \times 8 \\ \hline \end{array}$ **21.** $\begin{array}{r} 1 \\ \times 8 \\ \hline \end{array}$ **22.** $\begin{array}{r} 4 \\ \times 7 \\ \hline \end{array}$

Copy and complete the patterns.

23. 8, 16, 24, ▒, ▒, ▒, 56, ▒, ▒

24. 9, 18, ▒, ▒, 45, 54, ▒, ▒, ▒

Copy and complete the tables.

25.

Number of rows	6	5	2	9	?	?	3	?
Seeds in each row	9	8	9	?	7	2	?	9
Seeds in all	54	?	?	36	56	18	27	72

26.

×	8
1	
2	
3	
4	
5	
6	
7	
8	
9	

27.

×	9
1	
2	
3	
4	
5	
6	
7	
8	
9	

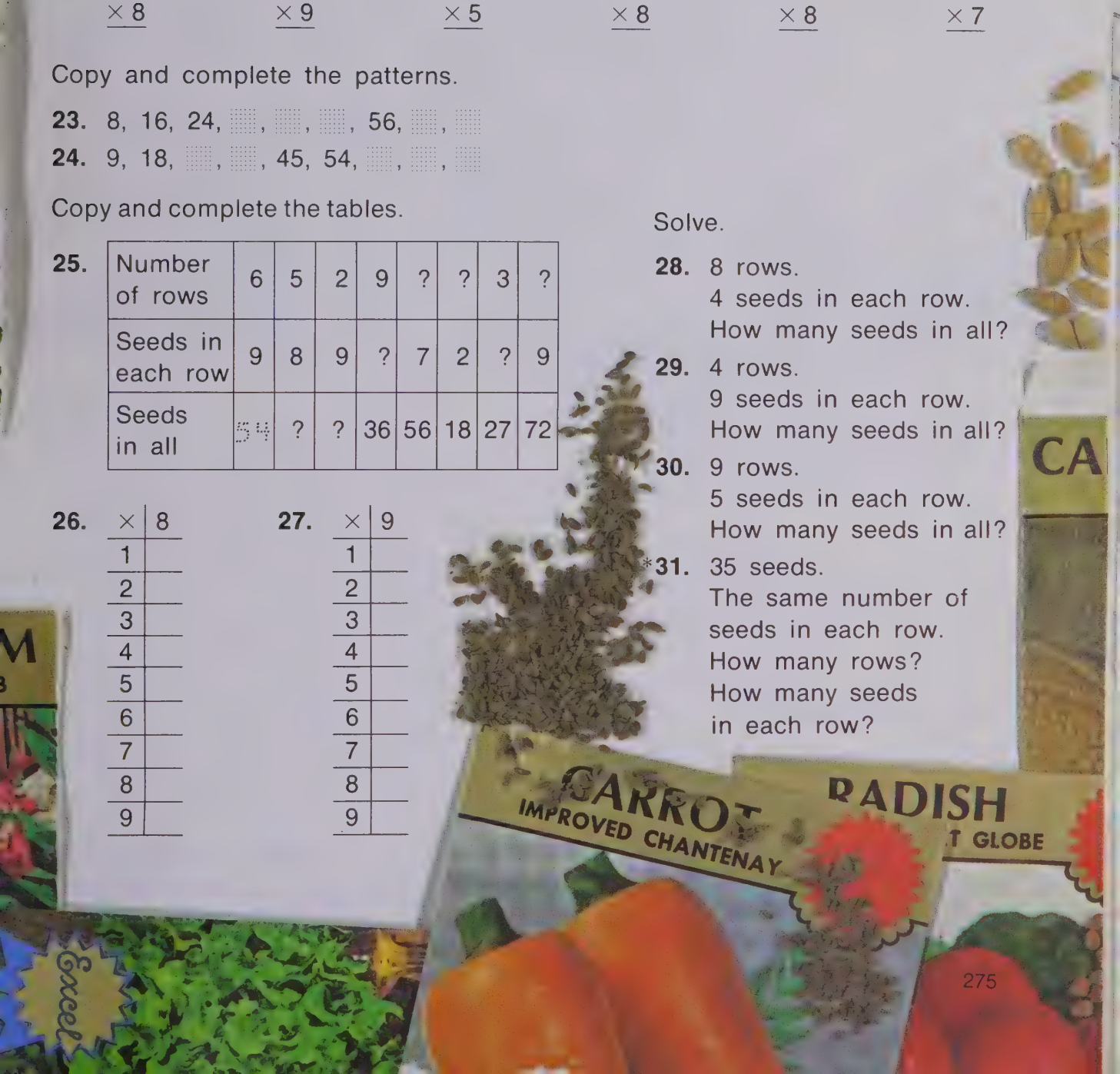
Solve.

28. 8 rows.
4 seeds in each row.
How many seeds in all?

29. 4 rows.
9 seeds in each row.
How many seeds in all?

30. 9 rows.
5 seeds in each row.
How many seeds in all?

***31.** 35 seeds.
The same number of seeds in each row.
How many rows?
How many seeds in each row?

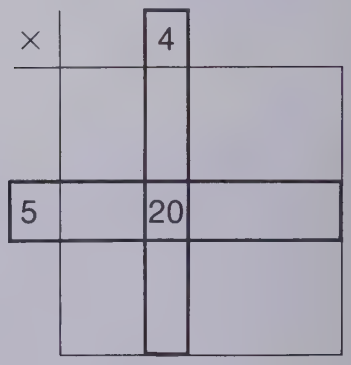


Practice

This table shows the 100 basic multiplication facts.

×	0	1	2	3	4	5	6	7	8	9
0	0	0	0	0	0	0	0	0	0	0
1	0	1	2	3	4	5	6	7	8	9
2	0	2	4	6	8	10	12	14	16	18
3	0	3	6	9	12	15	18	21	24	27
4	0	4	8	12	16	20	24	28	32	36
5	0	5	10	15	20	25	30	35	40	45
6	0	6	12	18	24	30	36	42	48	54
7	0	7	14	21	28	35	42	49	56	63
8	0	8	16	24	32	40	48	56	64	72
9	0	9	18	27	36	45	54	63	72	81

Use it like this to find 5×4.



The table shows $5 \times 4 = 20$.

Exercises

Multiply. Use the table if you need to.

1. 4×5 **2.** 5×2 **3.** 9×9 **4.** 3×4 **5.** 5×9

6. 8×7 **7.** 7×3 **8.** 5×0 **9.** 2×6 **10.** 7×2

Multiply.

11. $\begin{array}{r} 7 \\ \times 5 \\ \hline \end{array}$ **12.** $\begin{array}{r} 5 \\ \times 3 \\ \hline \end{array}$ **13.** $\begin{array}{r} 6 \\ \times 6 \\ \hline \end{array}$ **14.** $\begin{array}{r} 8 \\ \times 5 \\ \hline \end{array}$ **15.** $\begin{array}{r} 6 \\ \times 8 \\ \hline \end{array}$ **16.** $\begin{array}{r} 7 \\ \times 9 \\ \hline \end{array}$

17. $\begin{array}{r} 4 \\ \times 8 \\ \hline \end{array}$ **18.** $\begin{array}{r} 5 \\ \times 7 \\ \hline \end{array}$ **19.** $\begin{array}{r} 8 \\ \times 9 \\ \hline \end{array}$ **20.** $\begin{array}{r} 8 \\ \times 0 \\ \hline \end{array}$ **21.** $\begin{array}{r} 7 \\ \times 3 \\ \hline \end{array}$ **22.** $\begin{array}{r} 9 \\ \times 3 \\ \hline \end{array}$

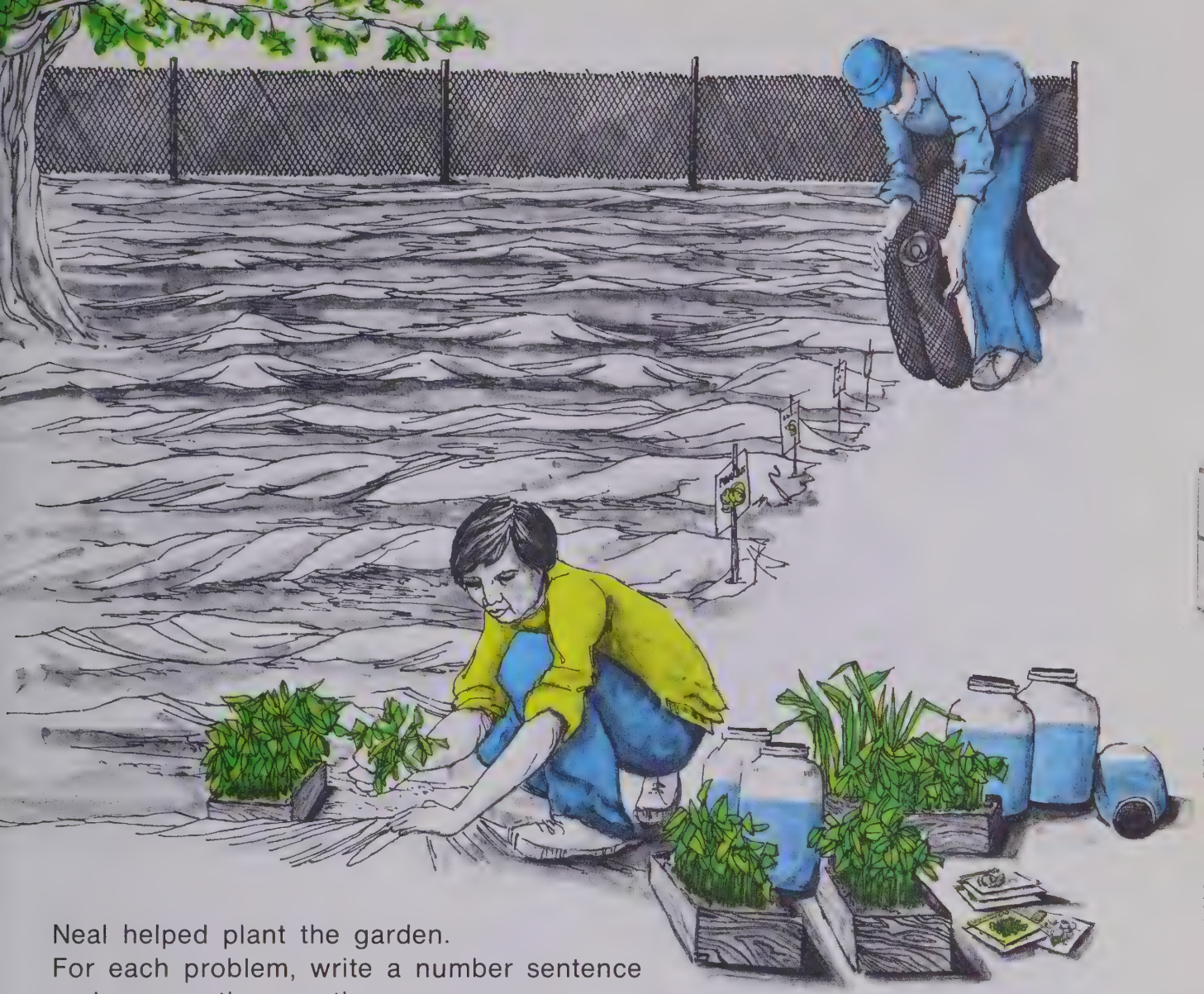
23. $\begin{array}{r} 2 \\ \times 8 \\ \hline \end{array}$ **24.** $\begin{array}{r} 9 \\ \times 7 \\ \hline \end{array}$ **25.** $\begin{array}{r} 6 \\ \times 5 \\ \hline \end{array}$ **26.** $\begin{array}{r} 8 \\ \times 8 \\ \hline \end{array}$ **27.** $\begin{array}{r} 8 \\ \times 1 \\ \hline \end{array}$ **28.** $\begin{array}{r} 7 \\ \times 6 \\ \hline \end{array}$

Write $<$, $>$, or $=$ to complete each sentence.

29. $6 \times 3 \bigcirc 6 \times 4$ **30.** $8 \times 5 \bigcirc 6 \times 5$ **31.** $4 \times 8 \bigcirc 4 \times 9$

32. $4 \times 7 \bigcirc 7 \times 4$ **33.** $8 \times 3 \bigcirc 9 \times 2$ **34.** $7 \times 7 \bigcirc 6 \times 8$

35. $4 \times 6 \bigcirc 3 \times 8$ **36.** $9 \times 6 \bigcirc 7 \times 8$ **37.** $7 \times 6 \bigcirc 9 \times 5$



Neal helped plant the garden.
For each problem, write a number sentence and answer the question.

38. 8 d (days) to plant. 3 h (hours) of work each day. How many hours worked in all?

39. 2 rows of cabbages. 9 cabbages in each row. How many cabbages in all?

40. 4 boxes of tomato plants. 6 plants in each box. How many tomato plants in all?

41. 6 hills for pumpkins. 9 pumpkin seeds in each hill. How many pumpkin seeds in all?

42. 5 bottles to carry water. 8 L in each bottle. How much water in all?

43. 4 sides to fence. 6 m on each side. How much fencing in all?

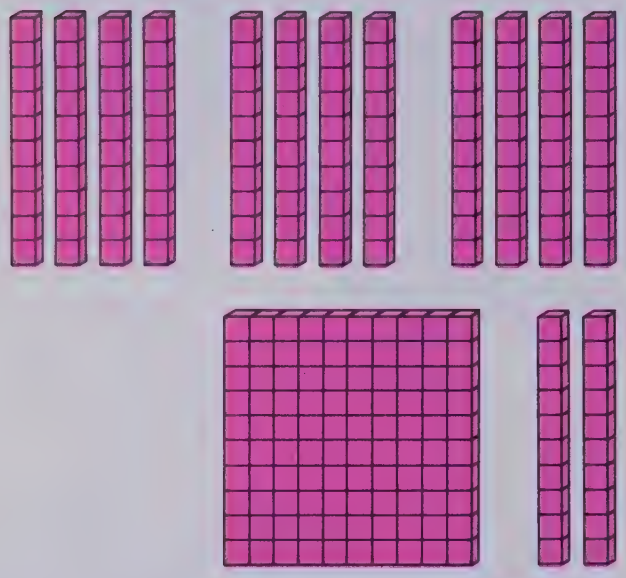
44. 3 types of potatoes. 4 rows of each type. How many rows of potatoes in all?

***45.** 7 rows of sweet corn. 3 rows of popcorn. How many rows of corn in all?

10 and Multiples of 10 as Factors

What is the product of 3 and 40?

For 3×40, think of 3 groups of 40
or 3 groups of 4 tens.



$3 \times 4 = 12$

3×4 tens $= 12$ tens

$3 \times 40 = 120$

The product of 3 and 40 is 120.

Take another look:

4 tens	40
$\times 3$	$\times 3$
12 tens	120

Working Together

Complete.

1. $3 \times 3 =$ ▒

3×3 tens $=$ ▒ tens

$3 \times 30 =$ ▒

2. $6 \times 1 =$ ▒

6×1 ten $=$ ▒ tens

$6 \times 10 =$ ▒

3. $5 \times 3 =$ ▒

5×3 tens $=$ ▒ tens

$5 \times 30 =$ ▒

4. $2 \times 30 =$ ▒

5. $9 \times 10 =$ ▒

6. $7 \times 40 =$ ▒

Multiply.

7.	**8.**	**9.**	**10.**	**11.**	**12.**
20	60	10	50	90	40
$\times 3$	$\times 9$	$\times 4$	$\times 2$	$\times 6$	$\times 5$

Exercises

Multiply.

1. 6×20 **2.** 3×70

3. 2×20 **4.** 6×40

5. 4×80 **6.** 4×30

7. 1×70 **8.** 5×10

9. 9×30 **10.** 8×90

Multiply.

11. 70×5 **12.** 80×7 **13.** 50×3

14. 60×4 **15.** 70×2 **16.** 90×4

17. 70×7 **18.** 50×6 **19.** 40×2

Copy and complete the tables.

20.

×	80
6	
8	
3	
5	
0	
2	

21.

×	50
5	
9	
1	
4	
7	
8	

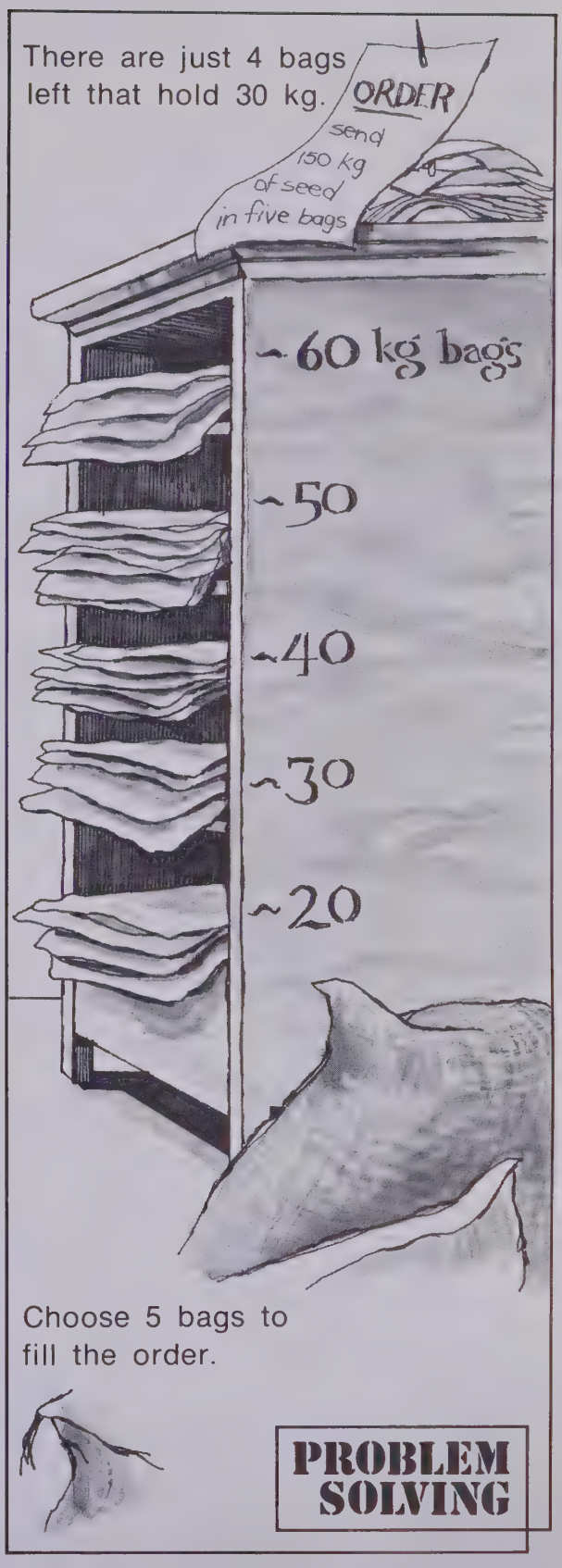
Solve.

22. 60 s (seconds) in each minute. How many seconds in 5 min (minutes)?

23. How many seconds in 8 min?

24. 60 min in each hour. How many minutes in 3 h (hours)?

25. How many minutes in 7 h?



Multiplying with No Regrouping

Emily sold green beans from her garden for 32¢ a bag. How much did she get for 3 bags of green beans?

Multiply 3×32.

	tens	ones
	3	2
×		3
	6	

Multiply 3×2 ones.

3×2 ones $= 6$ ones.

Multiply 3×3 tens
or 3×30.

	tens	ones
	3	2
×		3
	6	
	9	0

3×3 tens $= 9$ tens.
$3 \times 30 = 90$

	tens	ones
	3	2
×		3
		6
	9	0
	9	6

Add 6 and 90.

Emily got 96¢ for 3 bags of green beans.

Working Together

Follow the steps.

1.

$$\begin{array}{r} 21 \\ \times\ 3 \\ \hline \end{array}$$

Multiply 3×1. ⟶
Multiply 3×2 tens. ⟶ 60
Add to get ⟶ 63

2.

$$\begin{array}{r} 34 \\ \times\ 2 \\ \hline \end{array}$$

Multiply 2×4. ⟶
Multiply 2×3 tens. ⟶
Add to get ⟶ 68

Multiply.

3. $\begin{array}{r} 33 \\ \times\ 2 \\ \hline \end{array}$ **4.** $\begin{array}{r} 31 \\ \times\ 3 \\ \hline \end{array}$ **5.** $\begin{array}{r} 21 \\ \times\ 4 \\ \hline \end{array}$ **6.** $\begin{array}{r} 30 \\ \times\ 3 \\ \hline \end{array}$

Exercises

Multiply.

1. $\begin{array}{r} 22 \\ \times\ 4 \\ \hline \end{array}$ **2.** $\begin{array}{r} 23 \\ \times\ 2 \\ \hline \end{array}$ **3.** $\begin{array}{r} 12 \\ \times\ 3 \\ \hline \end{array}$ **4.** $\begin{array}{r} 44 \\ \times\ 2 \\ \hline \end{array}$ **5.** $\begin{array}{r} 21 \\ \times\ 2 \\ \hline \end{array}$

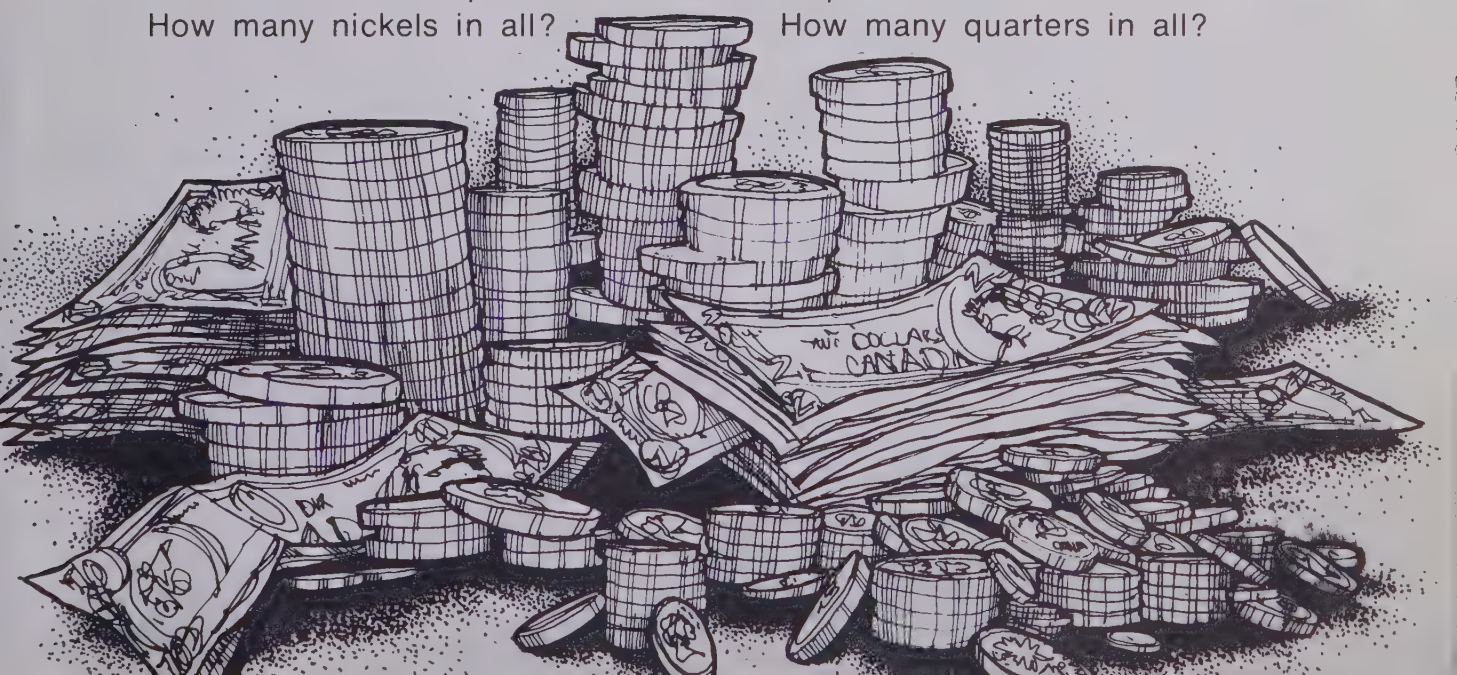
6. $\begin{array}{r} 13 \\ \times\ 3 \\ \hline \end{array}$ **7.** $\begin{array}{r} 10 \\ \times\ 5 \\ \hline \end{array}$ **8.** $\begin{array}{r} 32 \\ \times\ 2 \\ \hline \end{array}$ **9.** $\begin{array}{r} 33 \\ \times\ 3 \\ \hline \end{array}$ **10.** $\begin{array}{r} 41 \\ \times\ 2 \\ \hline \end{array}$

11. $\begin{array}{r} 20 \\ \times\ 4 \\ \hline \end{array}$ **12.** $\begin{array}{r} 13 \\ \times\ 2 \\ \hline \end{array}$ **13.** $\begin{array}{r} 11 \\ \times\ 4 \\ \hline \end{array}$ **14.** $\begin{array}{r} 23 \\ \times\ 3 \\ \hline \end{array}$ **15.** $\begin{array}{r} 42 \\ \times\ 2 \\ \hline \end{array}$

Solve.

16. 11 quarters.
5 nickels for each quarter.
How many nickels in all?

17. 12 dollars.
4 quarters for each dollar.
How many quarters in all?



Multiplying with Regrouping

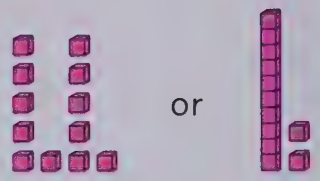
Find the product of 2 and 36.

To multiply 36 think of 2 groups of 36.
× 2

Multiply 2 × 6 ones.

2 × 6 ones = 12 ones,
or 1 ten, 2 ones.

	tens	ones
	3	6
×		2
	1	2



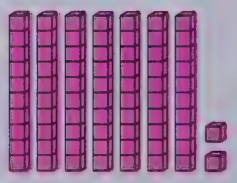
Multiply 2 × 3 tens
or 2 × 30.

2 × 3 tens = 6 tens.
2 × 30 = 60

	3	6
×		2
	1	2
	6	0

Add 12 and 60.

	3	6
×		2
	1	2
	6	0
	7	2



The product of 2 and 36 is 72.

Working Together

Follow the steps.

1.

$$\begin{array}{r} 23 \\ \times\ 4 \\ \hline \end{array}$$

Multiply 4×3. ⟶
Multiply 4×2 tens. ⟶ 80
Add to get ⟶ 92

2.

$$\begin{array}{r} 74 \\ \times\ 3 \\ \hline \end{array}$$

Multiply 3×4. ⟶
Multiply 3×7 tens. ⟶ ____
Add. ⟶

3.

$$\begin{array}{r} 39 \\ \times\ 3 \\ \hline \end{array}$$

Multiply 3×9. ⟶
Multiply 3×3 tens. ⟶ ____
Add. ⟶

Multiply.

4. $\begin{array}{r} 28 \\ \times\ 2 \\ \hline \end{array}$ **5.** $\begin{array}{r} 35 \\ \times\ 3 \\ \hline \end{array}$ **6.** $\begin{array}{r} 78 \\ \times\ 4 \\ \hline \end{array}$

Exercises

Multiply.

1. $\begin{array}{r} 36 \\ \times\ 8 \\ \hline \end{array}$ **2.** $\begin{array}{r} 53 \\ \times\ 2 \\ \hline \end{array}$ **3.** $\begin{array}{r} 37 \\ \times\ 7 \\ \hline \end{array}$

4. $\begin{array}{r} 51 \\ \times\ 6 \\ \hline \end{array}$ **5.** $\begin{array}{r} 45 \\ \times\ 5 \\ \hline \end{array}$ **6.** $\begin{array}{r} 14 \\ \times\ 6 \\ \hline \end{array}$

7. $\begin{array}{r} 92 \\ \times\ 9 \\ \hline \end{array}$ **8.** $\begin{array}{r} 70 \\ \times\ 4 \\ \hline \end{array}$ **9.** $\begin{array}{r} 47 \\ \times\ 2 \\ \hline \end{array}$

10. $\begin{array}{r} 64 \\ \times\ 8 \\ \hline \end{array}$ **11.** $\begin{array}{r} 77 \\ \times\ 5 \\ \hline \end{array}$ **12.** $\begin{array}{r} 68 \\ \times\ 9 \\ \hline \end{array}$

Find the product of each pair of numbers.

13. 56 and 5
14. 6 and 65
15. 74 and 9
16. 4 and 89
17. 27 and 4
18. 7 and 15

The Turners plan to spend $350 while at their holiday spot. They saw this list in the newspaper.

Travel to	Each day plan to spend about
Banff National Park	$48
Cape Breton Island	$33
Florida	$57
Fundy National Park	$32
Lake of the Woods	$34
New York City	$65
Prince Albert National Park	$30
Quebec City	$50
St. Pierre and Miquelon	$35
Toronto	$55
Vancouver	$53

Where could the Turners stay for 7 days for $350 or less?

PROBLEM SOLVING

Practice

Leif lives on a farm.
Use multiplication and answer each question.

1. Leif rides a bus to school. He rides 23 km each day. How far does he ride in 5 d (days)?
2. The farm has 3 chicken coops. Leif takes care of 37 chickens in each coop. How many chickens does Leif take care of?
3. Leif planted 4 patches of strawberries. He put 72 plants in each patch. How many plants did he put in?
4. 68 maple trees each have 2 buckets to catch sap in the spring. How many buckets does Leif have to empty when it's his turn to gather the sap?
5. One time Leif gathered 3 L of sap from each of 68 maple trees. How many litres did he gather in all?
6. Leif expects the pigs to have 11 litters of baby pigs this year. He expects about 8 piglets in each litter. About how many piglets does Leif expect in all?

Leif kept a record of the number of fish he caught each month in the farm pond.

Jan.	
Feb.	
Mar.	
April	
May	
June	
July	
Aug.	
Sept.	
Oct.	
Nov.	
Dec.	
	Each = 5 fish caught.

7. Leif sold 4 pigs when each pig reached 98 kg. How heavy were the 4 pigs together?

8. There are 27 cows in each of 3 fields. How many cows are there in all?

9. One cow gave 36 L of milk each day for 3 d. How much milk did the cow give in the 3 d?

10. How many fish did Leif catch in April?

11. How many fish did Leif catch in August?

12. In what month did Leif catch the most fish?

13. How many more fish did Leif catch in September than in October?

***14.** In what month did Leif go fishing the most times?

Multiplying with the Standard Algorithm

36 eggs in each box.
How many eggs in 9 boxes?

Multiply 9×36.

Multiply 9×6 ones.

9×6 ones $= 54$ ones
or 5 tens, 4 ones.

	tens	ones
	3	6
$\times$		9
	5	4

Save the 5 tens.

	5	
	3	6
$\times$		9
		4

Multiply 9×3 tens.

9×3 tens $= 27$ tens.

Add the 5 tens
that were saved.

5 more tens make 32 tens
or 3 hundreds, 2 tens.

	5	
	3	6
$\times$		9
	3	2 4

This **standard form** for multiplying
shows there are 324 eggs in 9 boxes.

Working Together

Show each multiplication in the standard form.

Example: $\begin{array}{r} 38 \\ \times\ 6 \\ \hline 48 \\ 180 \\ \hline 228 \end{array}$ becomes $\begin{array}{r} {\scriptstyle 4} \\ 38 \\ \times\ 6 \\ \hline 228 \end{array}$

1. $\begin{array}{r} 27 \\ \times\ 3 \\ \hline 21 \\ 60 \\ \hline 81 \end{array}$ **2.** $\begin{array}{r} 54 \\ \times\ 9 \\ \hline 36 \\ 450 \\ \hline 486 \end{array}$ **3.** $\begin{array}{r} 25 \\ \times\ 6 \\ \hline 30 \\ 120 \\ \hline 150 \end{array}$ **4.** $\begin{array}{r} 67 \\ \times\ 8 \\ \hline 56 \\ 480 \\ \hline 536 \end{array}$

Multiply. Use the standard form.

5. $\begin{array}{r} 24 \\ \times\ 4 \end{array}$ **6.** $\begin{array}{r} 38 \\ \times\ 3 \end{array}$ **7.** $\begin{array}{r} 59 \\ \times\ 6 \end{array}$ **8.** $\begin{array}{r} 77 \\ \times\ 8 \end{array}$ **9.** $\begin{array}{r} 46 \\ \times\ 5 \end{array}$

Exercises

Multiply. Use the standard form.

1. $\begin{array}{r} 36 \\ \times\ 4 \end{array}$ **2.** $\begin{array}{r} 42 \\ \times\ 8 \end{array}$ **3.** $\begin{array}{r} 57 \\ \times\ 3 \end{array}$ **4.** $\begin{array}{r} 26 \\ \times\ 8 \end{array}$ **5.** $\begin{array}{r} 52 \\ \times\ 7 \end{array}$ **6.** $\begin{array}{r} 49 \\ \times\ 9 \end{array}$

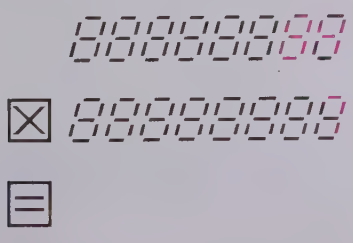
7. $\begin{array}{r} 27 \\ \times\ 8 \end{array}$ **8.** $\begin{array}{r} 66 \\ \times\ 6 \end{array}$ **9.** $\begin{array}{r} 75 \\ \times\ 4 \end{array}$ **10.** $\begin{array}{r} 39 \\ \times\ 7 \end{array}$ **11.** $\begin{array}{r} 17 \\ \times\ 4 \end{array}$ **12.** $\begin{array}{r} 28 \\ \times\ 6 \end{array}$

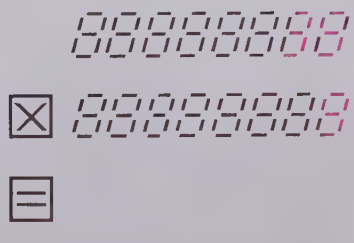
There are 12 in a dozen. Complete this table.

13.

Number of dozen	1	2	3	4	5	6	7	8	9
Number in all	12	?	?	?	?	?	?	?	?

What would the calculator show for each product?

14. 

15. 

Practice

Multiply.

1.	33 × 9	**2.**	68 × 6	**3.**	44 × 4
4.	72 × 2	**5.**	87 × 2	**6.**	59 × 4
7.	53 × 3	**8.**	27 × 7	**9.**	69 × 5
10.	82 × 7	**11.**	93 × 4	**12.**	47 × 9
13.	29 × 8	**14.**	56 × 7	**15.**	81 × 4
16.	43 × 8	**17.**	25 × 5	**18.**	64 × 9
19.	18 × 8	**20.**	97 × 2	**21.**	88 × 6
22.	58 × 9	**23.**	35 × 3	**24.**	46 × 5
25.	75 × 3	**26.**	23 × 6	**27.**	76 × 8
28.	51 × 5	**29.**	49 × 6	**30.**	66 × 3

The Town Market is open every Saturday. Use multiplication and answer each question.

31. Mrs. Souza sells potatoes in bags of 15 kg each. She has 8 bags to sell. How many kilograms of potatoes does she have to sell?

32. Susan tied beets together in bunches of 6 beets each. She made 37 bunches. How many beets does Susan have to sell?

33. Mr. Hill needs 8 dozen ears of corn. How many ears of corn are in 8 dozen?

Write amounts of money over one dollar in dollars and cents.

Example: 356¢ is also $3.56.

34. Erin sells a dozen ears of corn for 84¢. How much would Mr. Hill pay for 8 dozen ears of Erin's corn?

35. Mrs. Souza sells corn too. She has it in bags with 16 ears in each bag. How many ears are in 6 bags?

36. Mrs. Souza sells each bag for 96¢. How much would Mr. Hill pay for 6 bags of Mrs. Souza's corn?

*__37.__ Susan put 13 ears of corn into each sack. She sold each sack for 79¢. How much would Mr. Hill pay for 7 sacks of Susan's corn?

*__38.__ Should Mr. Hill buy corn from Erin, Mrs. Souza, or Susan?

More Than One Solution

Some problems have more than one solution.

Example: Virginia has 10¢. She wants to buy two postage stamps. How much will each stamp cost?

There are five possible solutions for this problem. →

Virginia could buy

a 1¢ stamp and a 9¢ stamp,
a 2¢ stamp and an 8¢ stamp,
a 3¢ stamp and a 7¢ stamp,
a 4¢ stamp and a 6¢ stamp,
or two 5¢ stamps.

For a problem like this, it is best if you can show all solutions. When there are too many solutions to show, you should at least say that there are other solutions.

Each of these has more than one solution. Give all the solutions, if you can.

1. The sum of two numbers is 11. What are the numbers?

2. The difference of two numbers is 2. What are the numbers?

3. How many coins are needed to make 15¢?

4. Sue Ann has 3 coins. What could their values be?

5. Hal has 7¢ to spend for three stamps. How much could he spend for each stamp?

6. Abby has 24¢ to spend for some 2¢ stamps and some 3¢ stamps. How many of each could she buy?

7. How could you cut a rectangular cake into four equal pieces?

8. How could 10 candles be placed in a pattern on a birthday cake?

9. How could you place 12 square shapes together to form a rectangular shape?

10. Jane Gray used

to make her initials. What initials could be made with these?

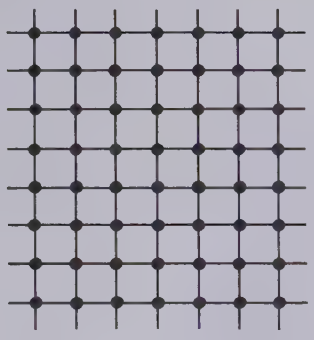
PROBLEM SOLVING

Checking Up

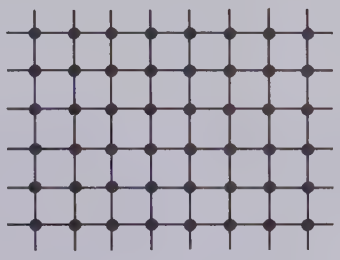
Name the picture that matches each product.
Then write the multiplication sentence.

1. 7×6
2. 6×8
3. 8×7

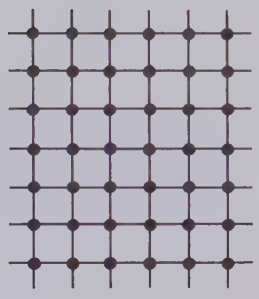
Picture A



Picture B



Picture C



Multiply.

4. 8×9 **5.** 6×6 **6.** 7×8 **7.** 6×9

8. $\begin{array}{r} 8 \\ \times 8 \\ \hline \end{array}$	**9.** $\begin{array}{r} 9 \\ \times 7 \\ \hline \end{array}$	**10.** $\begin{array}{r} 7 \\ \times 6 \\ \hline \end{array}$	**11.** $\begin{array}{r} 6 \\ \times 9 \\ \hline \end{array}$	**12.** $\begin{array}{r} 7 \\ \times 7 \\ \hline \end{array}$
13. $\begin{array}{r} 30 \\ \times 2 \\ \hline \end{array}$	**14.** $\begin{array}{r} 20 \\ \times 7 \\ \hline \end{array}$	**15.** $\begin{array}{r} 50 \\ \times 4 \\ \hline \end{array}$	**16.** $\begin{array}{r} 60 \\ \times 3 \\ \hline \end{array}$	**17.** $\begin{array}{r} 10 \\ \times 6 \\ \hline \end{array}$
18. $\begin{array}{r} 23 \\ \times 3 \\ \hline \end{array}$	**19.** $\begin{array}{r} 13 \\ \times 2 \\ \hline \end{array}$	**20.** $\begin{array}{r} 21 \\ \times 4 \\ \hline \end{array}$	**21.** $\begin{array}{r} 32 \\ \times 2 \\ \hline \end{array}$	**22.** $\begin{array}{r} 41 \\ \times 3 \\ \hline \end{array}$
23. $\begin{array}{r} 37 \\ \times 2 \\ \hline \end{array}$	**24.** $\begin{array}{r} 23 \\ \times 4 \\ \hline \end{array}$	**25.** $\begin{array}{r} 16 \\ \times 3 \\ \hline \end{array}$	**26.** $\begin{array}{r} 19 \\ \times 5 \\ \hline \end{array}$	**27.** $\begin{array}{r} 36 \\ \times 3 \\ \hline \end{array}$
28. $\begin{array}{r} 59 \\ \times 2 \\ \hline \end{array}$	**29.** $\begin{array}{r} 23 \\ \times 5 \\ \hline \end{array}$	**30.** $\begin{array}{r} 24 \\ \times 8 \\ \hline \end{array}$	**31.** $\begin{array}{r} 56 \\ \times 7 \\ \hline \end{array}$	**32.** $\begin{array}{r} 73 \\ \times 9 \\ \hline \end{array}$

Solve.

33. 9 rolls of film. 20 pictures on each roll. How many pictures in all?

34. 4 pans. 12 muffins in each pan. How many muffins in all?

35. 24 h in each day. 7 d in each week. How many hours in a week?

36. 64 crayons in each box. 8 boxes of crayons. How many crayons in all?

16 DIVISION

Division Concepts and Notation – Review

20 marbles. 5 children.
How many marbles for each child?

A picture can show how
20 are shared equally by 5.

There are 4 marbles
for each child.

Divide 20 by 5.

Subtract 5 at a time as
each child takes a marble.

$$\begin{array}{r} 20 \\ -\ 5 \\ \hline 15 \\ -\ 5 \\ \hline 10 \\ -\ 5 \\ \hline 5 \\ -\ 5 \\ \hline 0 \end{array}$$

There are 4 subtractions.

The division sentence

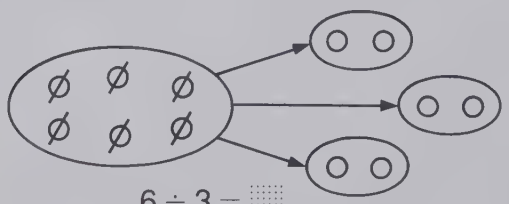
$$20 \div 5 = 4$$

shows 20 divided
by 5 equals 4.

Working Together

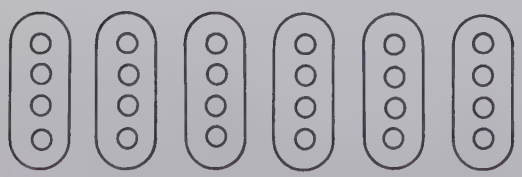
Complete the division
sentence for each picture.

1.



$6 \div 3 =$ ▒

2.



$24 \div 4 =$ ▒

Draw a picture and give the
division sentence for each.

3. $9 \div 3$ **4.** $12 \div 2$

What number do you subtract
each time to find

5. $12 \div 3$? **6.** $15 \div 5$?

How many times do you
subtract in finding

7. $12 \div 3$? **8.** $15 \div 5$?

Use subtraction to find the quotient.
Give the division sentence.

9. $35 \div 5$ **10.** $20 \div 4$

12 marbles. 4 marbles for each child. How many children get marbles?

Divide 12 by 4.

A picture can show 12 ringed in groups of 4.

There are 3 groups.

Subtract 4 at a time (for each group of 4).

$$\begin{array}{r} 12 \\ -\ 4 \\ \hline 8 \\ -\ 4 \\ \hline 4 \\ -\ 4 \\ \hline 0 \end{array}$$

There are 3 subtractions.

The division sentence

$$12 \div 4 = 3$$

shows 12 divided by 4 equals 3.

3 is the quotient.

3 children get marbles.

Exercises

Draw a picture and write the division sentence for each.

1. $8 \div 2$ **2.** $10 \div 5$

3. $16 \div 4$ **4.** $12 \div 2$

5. $9 \div 3$ **6.** $15 \div 3$

Use subtraction to find each quotient. Write the division sentence.

7. $30 \div 5$ **8.** $21 \div 3$

9. $18 \div 3$ **10.** $6 \div 2$

11. $24 \div 3$ **12.** $25 \div 5$

Divide. Draw a picture or use subtraction if you need to.

13. $10 \div 2$ **14.** $4 \div 4$ **15.** $45 \div 5$ **16.** $5 \div 1$

17. $8 \div 4$ **18.** $16 \div 2$ **19.** $40 \div 5$ **20.** $36 \div 4$

21. $32 \div 4$ **22.** $27 \div 3$ **23.** $4 \div 2$ **24.** $14 \div 2$

Solve. Show each division.

25. 45 marbles.
5 children.
How many marbles for each child?

26. 28 marbles.
4 marbles for each child. How many children get marbles?

Using Multiplication to Divide, Divisors to 5

There are 20 jacks in 4 rows.
How many jacks are in each row?

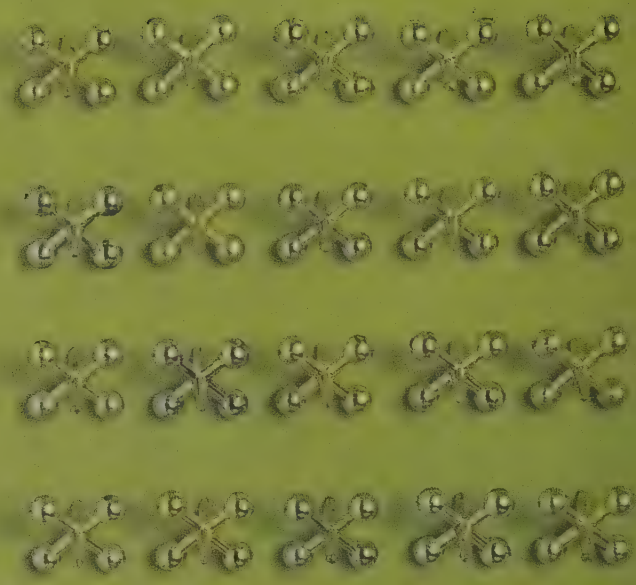
Divide 20 by 4.

For $20 \div 4 = \square$,
think

$4 \times \square = 20$

or

×	?
4	20



$4 \times 5 = 20$

or

×	5
4	20

Write $4\overline{)20}$ with 5 above the 20.

There are 5 jacks in each row.

The division fact *20 divided by 4 equals 5* can be shown like this

$20 \div 4 = 5$ or like this $4\overline{)20}$ with 5 above the 20.

Working Together

Use $\overline{}$ to show each division fact.

1. $30 \div 5 = 6$ **2.** 8 divided by 2 equals 4.

Use the multiplication tables to help you complete each of these.

×	?
2	14

3. $14 \div 2 = ?$

×	?
3	24

4. $24 \div 3 = ?$

×	?
4	24

5. $24 \div 4 = ?$

×	?
5	45

6. $45 \div 5 = ?$

7. $2\overline{)16}$ **8.** $3\overline{)21}$

9. $4\overline{)36}$ **10.** $5\overline{)30}$

×	1	2	3	4	5	6	7	8	9
2	2	4	6	8	10	12	14	16	18

×	1	2	3	4	5	6	7	8	9
3	3	6	9	12	15	18	21	24	27

×	1	2	3	4	5	6	7	8	9
4	4	8	12	16	20	24	28	32	36

×	1	2	3	4	5	6	7	8	9
5	5	10	15	20	25	30	35	40	45

Give the multiplication fact that can be used for each division. Then complete the division fact.

11. $5\overline{)15}$ **12.** $4\overline{)16}$ **13.** $3\overline{)27}$ **14.** $4\overline{)20}$

Exercises

Write the multiplication fact that can be used for each division. Then complete the division fact.

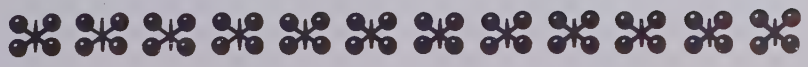
1. $2\overline{)10}$ **2.** $3\overline{)18}$ **3.** $4\overline{)12}$ **4.** $5\overline{)25}$ **5.** $4\overline{)28}$

6. $3\overline{)15}$ **7.** $5\overline{)20}$ **8.** $2\overline{)18}$ **9.** $3\overline{)12}$ **10.** $5\overline{)40}$

11. $3\overline{)9}$ **12.** $4\overline{)32}$ **13.** $2\overline{)6}$ **14.** $5\overline{)30}$ **15.** $5\overline{)35}$

16. $2\overline{)14}$ **17.** $4\overline{)24}$ **18.** $3\overline{)24}$ **19.** $5\overline{)45}$ **20.** $3\overline{)21}$

Divide to solve each problem.
Write the multiplication fact you use.

12 jacks. 

How many pickups if you take

21. 1 at a time? **22.** 2 at a time? **23.** 3 at a time?

24. 4 at a time? **25.** 6 at a time? **26.** 12 at a time?

Using Multiplication to Divide, Divisors to 7

48 children sign up for tug-of-war. There are 6 children to a team. How many teams will there be?

Divide

$$6\overline{)48}$$

Think

×	?
6	48

×	8
6	48

Write

$$6\overline{)48}\quad \text{with } 8 \text{ above } 48$$

There will be 8 teams.

Working Together

Complete these multiplication tables.

1.

×	1	2	3	4	5	6	7	8	9
6									

2.

×	1	2	3	4	5	6	7	8	9
7									

Give the multiplication fact that can be used for each division. Then complete the division fact.

3. $7\overline{)63}$ **4.** $6\overline{)30}$

5. $6\overline{)54}$ **6.** $7\overline{)42}$

Exercises

Divide. Write the multiplication fact you use.

1. $6\overline{)42}$	**2.** $7\overline{)35}$	**3.** $5\overline{)30}$	**4.** $7\overline{)21}$	**5.** $4\overline{)24}$
6. $2\overline{)12}$	**7.** $4\overline{)28}$	**8.** $6\overline{)36}$	**9.** $3\overline{)27}$	**10.** $7\overline{)49}$
11. $5\overline{)35}$	**12.** $6\overline{)18}$	**13.** $4\overline{)32}$	**14.** $7\overline{)56}$	**15.** $5\overline{)15}$
16. $7\overline{)28}$	**17.** $4\overline{)36}$	**18.** $6\overline{)24}$	**19.** $4\overline{)20}$	**20.** $7\overline{)14}$

Solve. Show each division.

21. 30 children sign up for volleyball. 6 children are on a team. How many teams are there?

22. 54 children play softball on 6 teams. How many children are on each team?

23. 49 children are in the sack-race relay. 7 teams are entered. How many children are on each team?

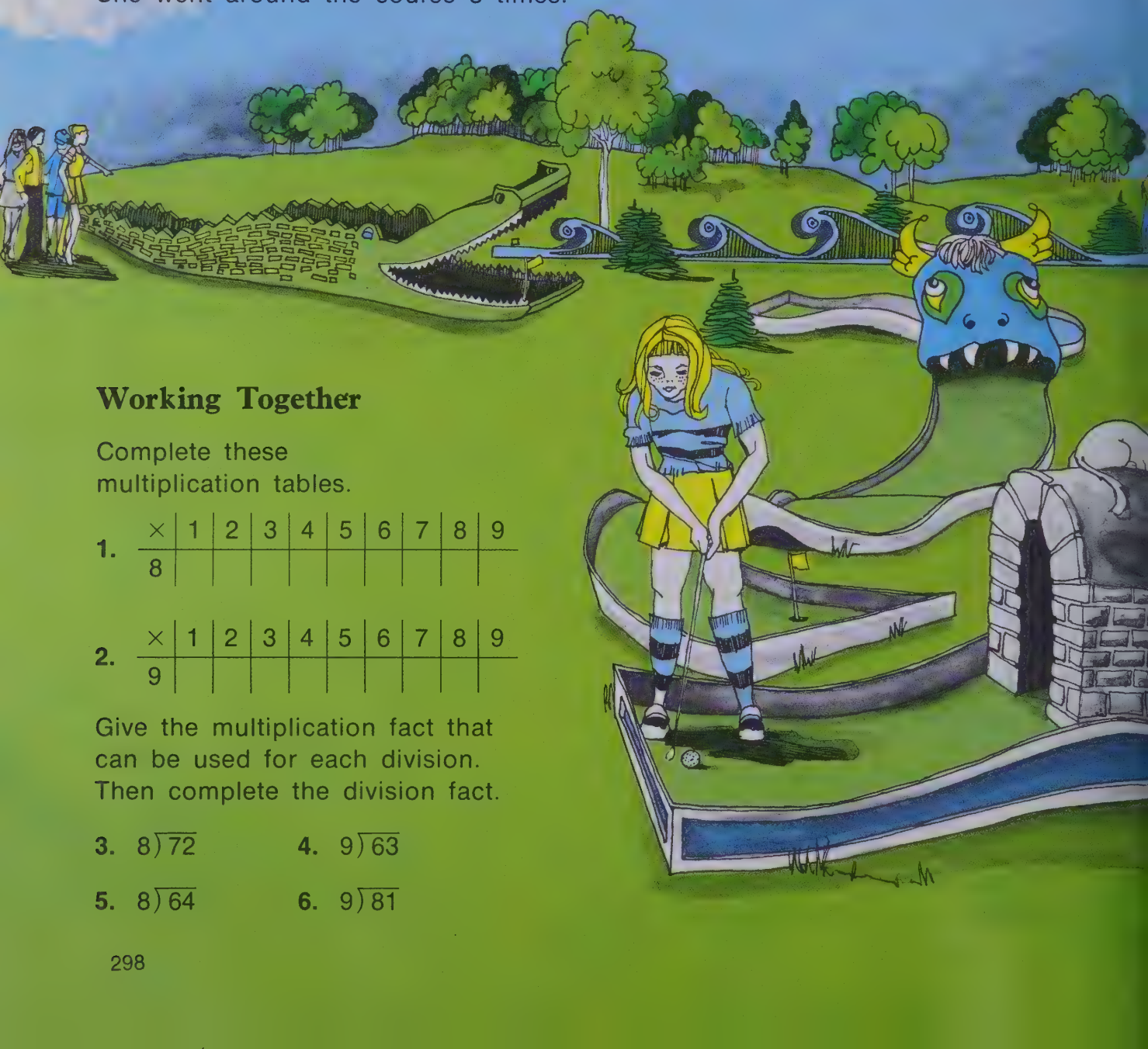
24. 16 children are in the three-legged race. The children race in pairs. How many pairs are there?

Using Multiplication to Divide, Divisors to 9

Jody played 72 holes at the miniature golf course.
How many times did she go around the 9-hole course?

Divide	Think		Write
$9\overline{)72}$	$\times \mid ?$ $9 \mid 72$	$\times \mid 8$ $9 \mid 72$	8 $9\overline{)72}$

She went around the course 8 times.



Working Together

Complete these multiplication tables.

1.

×	1	2	3	4	5	6	7	8	9
8									

2.

×	1	2	3	4	5	6	7	8	9
9									

Give the multiplication fact that can be used for each division. Then complete the division fact.

3. $8\overline{)72}$ **4.** $9\overline{)63}$

5. $8\overline{)64}$ **6.** $9\overline{)81}$

Exercises

Divide. Write the multiplication fact you use.

1. $9\overline{)18}$	**2.** $3\overline{)24}$	**3.** $8\overline{)48}$	**4.** $6\overline{)54}$	**5.** $8\overline{)56}$	**6.** $9\overline{)54}$
7. $9\overline{)9}$	**8.** $7\overline{)35}$	**9.** $6\overline{)48}$	**10.** $8\overline{)16}$	**11.** $9\overline{)27}$	**12.** $8\overline{)32}$
13. $8\overline{)40}$	**14.** $9\overline{)36}$	**15.** $7\overline{)56}$	**16.** $8\overline{)24}$	**17.** $1\overline{)8}$	**18.** $9\overline{)45}$

Solve. Show each division.

19. 32 children played golf in groups of 4. How many groups of 4 were there?

20. When Jody has played 81 holes, how many times has she gone around the 9-hole course?

Make an estimate for each. Tell how you could check each estimate.

1. How big around is a basketball?

2. How big around is a football?

3. How many dimples on a golf ball?

4. How long is the seam of a baseball?

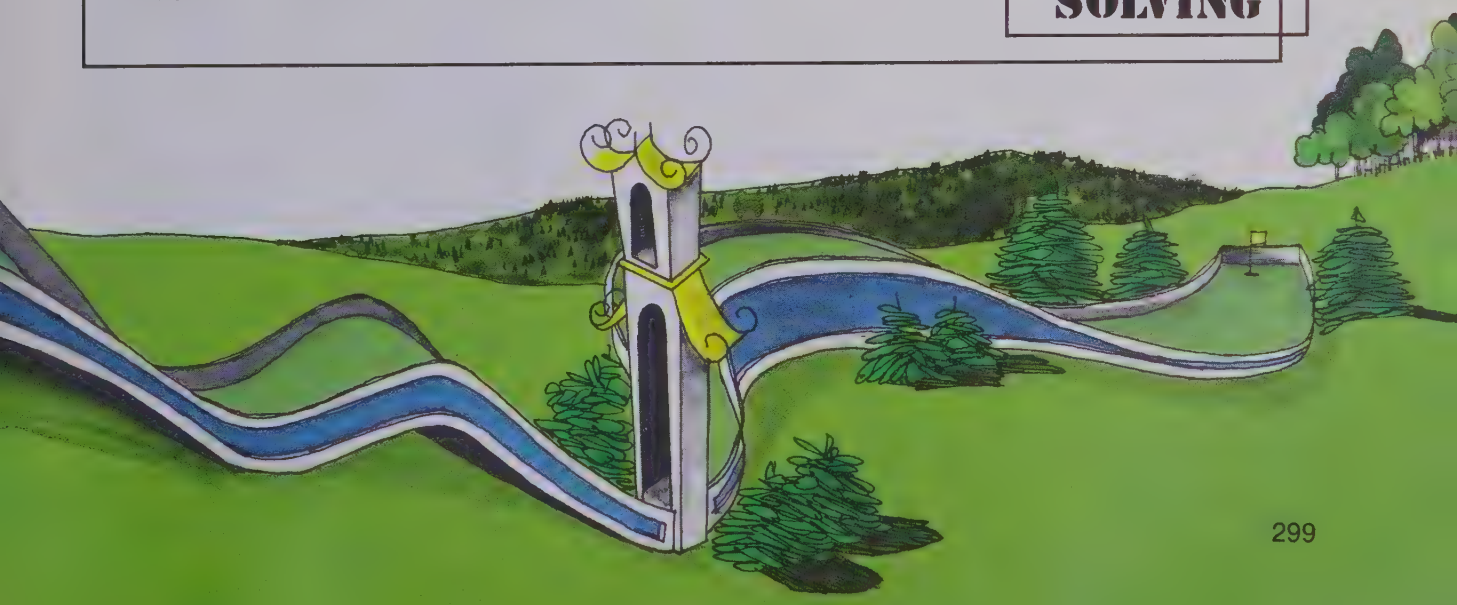
5. How many "hexagons" on a soccer ball?

6. Which is larger, a soccer ball or a volleyball?

List these in order, from the ball you can throw the shortest distance to the ball you can throw the longest distance.

7. tennis ball, baseball, basketball, football, golf ball, snowball, bowling ball, soccer ball, table-tennis ball

PROBLEM SOLVING



Practice

Copy and complete this multiplication table.

1.

×	1	2	3	4	5	6	7	8	9
1			3						
2		4							
3				12					
4									
5									
6									
7									
8									
9									

This table can help you with division. Use it like this to find $5\overline{)20}$.

×		4
5		20

The table shows $5\overline{)\overset{4}{20}}$.

Divide. Use your table if you need to.

2. $9\overline{)18}$ **3.** $3\overline{)12}$ **4.** $6\overline{)36}$

5. $6\overline{)12}$ **6.** $8\overline{)48}$ **7.** $6\overline{)54}$

8. $9\overline{)9}$ **9.** $9\overline{)45}$ **10.** $7\overline{)21}$

11. $6\overline{)42}$ **12.** $8\overline{)40}$ **13.** $6\overline{)24}$

14. $4\overline{)16}$ **15.** $7\overline{)63}$ **16.** $3\overline{)15}$

17. $7\overline{)35}$ **18.** $8\overline{)16}$ **19.** $5\overline{)35}$

20. $9\overline{)27}$ **21.** $6\overline{)48}$ **22.** $7\overline{)49}$

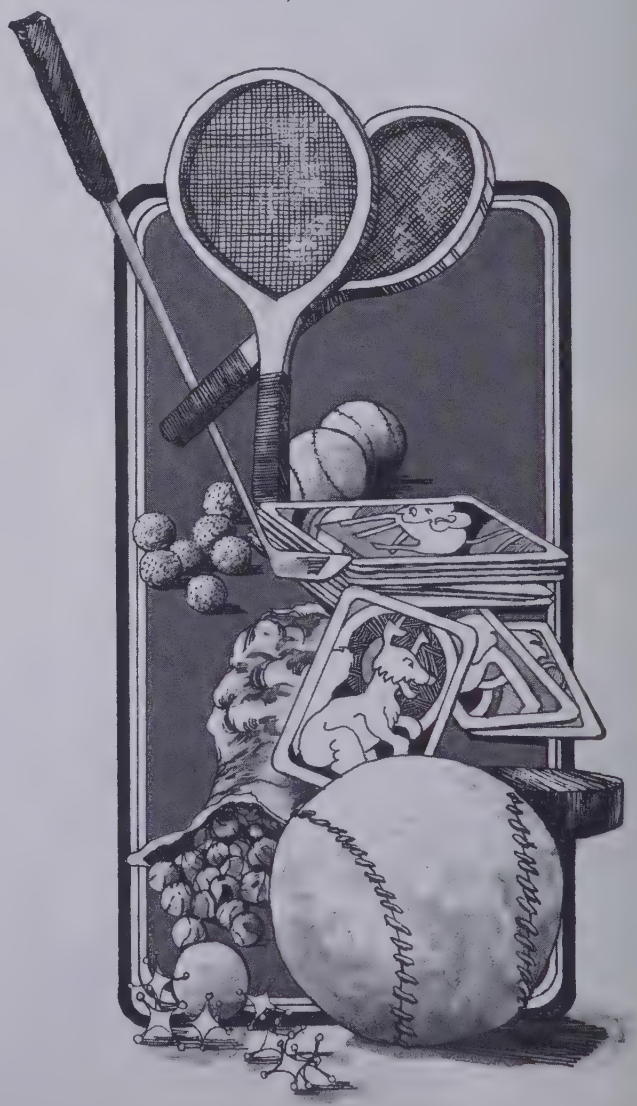
23. $2\overline{)10}$ **24.** $9\overline{)54}$ **25.** $7\overline{)28}$

26. $8\overline{)24}$ **27.** $9\overline{)63}$ **28.** $6\overline{)18}$

29. $8\overline{)72}$ **30.** $7\overline{)56}$ **31.** $9\overline{)36}$

32. $5\overline{)25}$ **33.** $8\overline{)64}$ **34.** $9\overline{)81}$

35. $8\overline{)32}$ **36.** $7\overline{)42}$ **37.** $7\overline{)14}$



Solve. Show each division.

38. 72 players.
9 players on each team.
How many teams?

39. 56 marbles.
8 children share equally.
How many marbles for each?

40. 6 players for the card game.
30 cards to deal out. How many cards for each player?

41. 18 jacks.
Pick up 3 at a time.
How many pickups?

*__42.__ 8 table-tennis balls.
Each box holds 3 balls.
How many boxes needed?

*__43.__ 8 players for the card game.
60 cards to deal out. How many cards for each player?

Each in the **pictograph** stands for 8 table-tennis games sold at the store.

July	
August	
September	
October	
November	
December	

1. How many table-tennis games were sold each month?

Brenda was at five parties last year.

2. Draw party hats in a pictograph to show how many children came to each party.

Let each party hat stand for 4 children.

20 children at the Halloween party

28 children at Brenda's party

36 children at the valentine party

32 children at Karen's party

24 children at the spring party

3. At the parties, 4 children sat at each table.
How many tables were needed for each party?

try this

Remainders

3 players share 11 letter tiles. They each take one tile at a time. How many tiles does each player take? How many tiles are left over?

The picture shows that each player can take 3 tiles. There will be 2 tiles left over.

Subtracting 3 at a time shows the same result.

```
  11
− 3   one for each player
   8
− 3   one for each player
   5
− 3   one for each player
   2   left over
```

The number left over is the **remainder.**

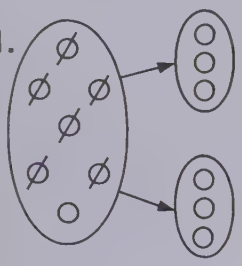
A division with remainder can be shown like this

$$3\overline{)11}\quad 3\ \mathrm{R}2$$

Working Together

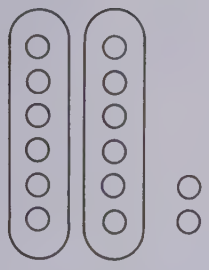
Complete the division to match each picture.

1.



$2\overline{)7}$ ▒ R ▒

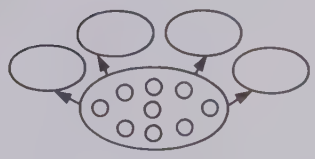
2.



$6\overline{)14}$ ▒ R ▒

Complete each picture and the division.

3. Show 9 shared by 4.



$4\overline{)9}$ ▒ R ▒

4. Show 26 in groups of 7.

$7\overline{)26}$ ▒ R ▒

Complete the division to match each column of subtraction facts.

5.

$$\begin{array}{r} 17 \\ -\ 5 \\ \hline 12 \\ -\ 5 \\ \hline 7 \\ -\ 5 \\ \hline 2 \end{array}$$

$5\overline{)17}$ ▒ R ▒

6.

$$\begin{array}{r} 13 \\ -\ 6 \\ \hline 7 \\ -\ 6 \\ \hline 1 \end{array}$$

$6\overline{)13}$ ▒ R ▒

Use subtraction. Find the quotient and remainder.

7. $8\overline{)18}$

8. $6\overline{)27}$

9. $9\overline{)45}$

10. $3\overline{)23}$

Exercises

Find the quotient and remainder.

1. $2\overline{)13}$

2. $3\overline{)20}$

3. $8\overline{)52}$

4. $3\overline{)25}$

5. $5\overline{)39}$

6. $7\overline{)66}$

7. $8\overline{)22}$

8. $4\overline{)31}$

9. $8\overline{)74}$

10. $6\overline{)37}$

11. $2\overline{)17}$

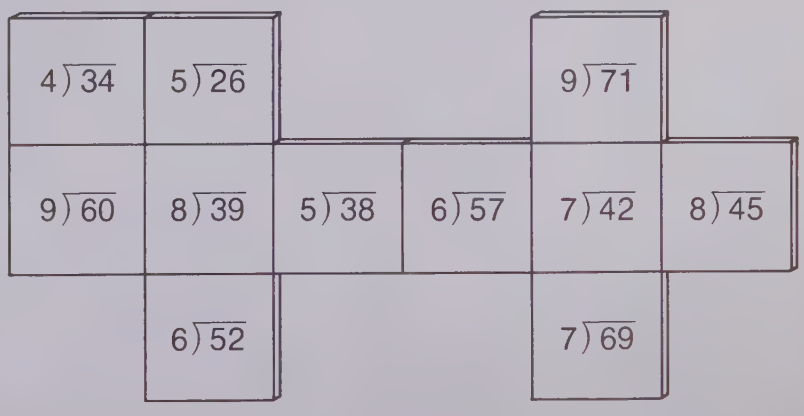
12. $9\overline{)58}$

13. $7\overline{)43}$

14. $4\overline{)26}$

15. Use this table to find the letter for each tile.

For this remainder →	0	1	2	3	4	5	6	7	8
use this letter →	E	F	I	M	N	R	S	U	Y



Using Multiplication to Divide, Non-Zero Remainders

There are 60 cards. The 8 players get the same number of cards. As many cards are used as possible. How many cards does each player get?

Divide $8\overline{)60}$

Study this table.

Number of cards for each player	1	2	3	4	5	6	7	8	9
Number of cards in all	8	16	24	32	40	48	56	64	72

Each player can get 7 cards.

There are not enough cards for each player to get 8.

Write

$$\begin{array}{r} 7 \\ 8\overline{)60} \\ \underline{56} \\ 4 \end{array}$$

7 cards to each player

60 cards in all

8×7 or 56 cards used

60 − 56 or 4 cards left over

8 players get 7 cards.
4 cards are left over.

Here is another way to show that the quotient is 7 and the remainder is 4.

$$\begin{array}{r} 7\ R4 \\ 8\overline{)60} \\ \underline{56} \\ 4 \end{array}$$

Working Together

For each question, find the best answer in the table.

1. Which multiplication fact would you use for $6\overline{)34}$?

×	4	5	6
6	24	30	36

2. Which multiplication fact would you use for $4\overline{)29}$?

×	6	7	8
4	24	28	32

Which multiplication fact would you use for each of these?

3. $7\overline{)30}$ **4.** $5\overline{)38}$ **5.** $9\overline{)23}$

Give the quotient and remainder to complete each division.

6. $5\overline{)44}$ ▒ R ▒

$\underline{40} \leftarrow 5 \times 8$

7. $6\overline{)22}$ ▒ R ▒

$\underline{18} \leftarrow 6 \times 3$

Divide. Show the quotient and remainder.

8. $8\overline{)36}$ **9.** $6\overline{)56}$ **10.** $7\overline{)40}$

Exercises

Divide. Show the quotient and remainder.

1. $6\overline{)33}$	**2.** $4\overline{)15}$	**3.** $7\overline{)60}$	**4.** $4\overline{)30}$	**5.** $8\overline{)45}$
6. $5\overline{)22}$	**7.** $9\overline{)59}$	**8.** $7\overline{)50}$	**9.** $5\overline{)29}$	**10.** $6\overline{)44}$
11. $3\overline{)20}$	**12.** $6\overline{)39}$	**13.** $9\overline{)88}$	**14.** $5\overline{)36}$	**15.** $8\overline{)67}$
16. $9\overline{)40}$	**17.** $8\overline{)75}$	**18.** $4\overline{)19}$	**19.** $6\overline{)50}$	**20.** $9\overline{)64}$
21. $8\overline{)35}$	**22.** $6\overline{)26}$	**23.** $7\overline{)68}$	**24.** $8\overline{)28}$	**25.** $5\overline{)49}$

The Concluding Statement

Your solution to a problem is complete when you give the **concluding statement.**

Example: Darwin, Olive, and Nora spend 15¢ for 27 beads. They share the beads equally. How many beads does each get?

To solve the problem divide 27 by 3.

$$3\overline{)27}\quad 9$$

This is the concluding statement. → Darwin, Olive, and Nora each get 9 beads.

The questions below were taken from some problems. The answers are given in the box, but they are mixed up. Match each question with an answer and write a concluding statement for the problem.

Questions:

1. How heavy were the 10 children together?
2. How far did the girl run?
3. How much more did the bottle holding 100 mL cost?
4. How much of the table was covered by the place mat?
5. How tall was the stack of 400 mL bottles?
6. How much water did Joshua use for his bath?
7. How hot was it when they drove the 10 km to the beach?
8. What time was it when Gretchen put the dime into the parking meter?
9. How much more syrup could you buy for an extra $0.50?

Answers:

100 mL
380 kg
100 L
120 cm
11:18
30°C
400 m
1200 cm²
$0.10

PROBLEM SOLVING

Checking Up

Write the multiplication fact that can be used to find the quotient. Complete the division fact.

1. $9\overline{)54}$

×	4	×	5	×	6
9	▒	9	▒	9	▒

Divide. Write the multiplication fact you use.

2. $6\overline{)48}$

3. $8\overline{)32}$

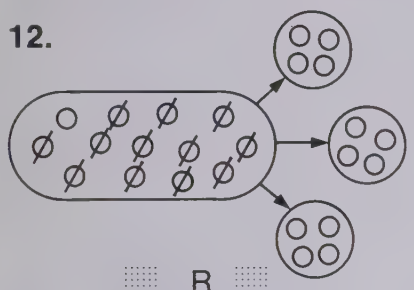
Divide.

4. $6\overline{)36}$ **5.** $9\overline{)27}$ **6.** $7\overline{)21}$ **7.** $6\overline{)24}$

8. $7\overline{)63}$ **9.** $8\overline{)40}$ **10.** $9\overline{)72}$ **11.** $8\overline{)64}$

Complete the division for each.

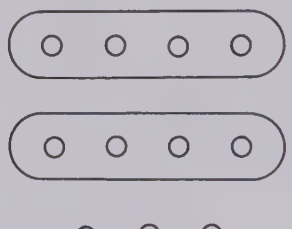
12.



▒ R ▒

$3\overline{)13}$

13.



▒ R ▒

$4\overline{)11}$

14.

$$\begin{array}{r} 16 \\ -\ 6 \\ \hline 10 \\ -\ 6 \\ \hline 4 \end{array}$$

▒ R ▒

$6\overline{)16}$

Write the multiplication fact that helps you find the quotient and remainder. Complete the division.

15. ▒ R ▒

$8\overline{)28}$

×	3	×	4	×	5
8	▒	8	▒	8	▒

Complete each division. Write the multiplication fact you use.

16. ▒ R ▒

$6\overline{)44}$

17. ▒ R ▒

$3\overline{)16}$

Divide. Show the quotient and remainder.

18. $4\overline{)31}$ **19.** $8\overline{)57}$ **20.** $5\overline{)34}$ **21.** $3\overline{)29}$

22. $9\overline{)69}$ **23.** $8\overline{)53}$ **24.** $9\overline{)83}$ **25.** $7\overline{)54}$

Show each division and answer the questions.

26. 28 marbles in all.
7 marbles for each player.
How many can play?

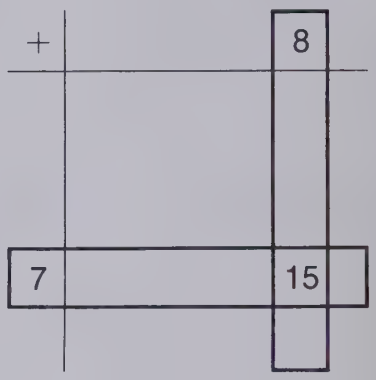
27. 14 cards in all. 5 children share equally. How many cards for each child? How many cards left over?

Skill Practice – Addition

This addition table shows the basic addition facts.

+	0	1	2	3	4	5	6	7	8	9
0	0	1	2	3	4	5	6	7	8	9
1	1	2	3	4	5	6	7	8	9	10
2	2	3	4	5	6	7	8	9	10	11
3	3	4	5	6	7	8	9	10	11	12
4	4	5	6	7	8	9	10	11	12	13
5	5	6	7	8	9	10	11	12	13	14
6	6	7	8	9	10	11	12	13	14	15
7	7	8	9	10	11	12	13	14	15	16
8	8	9	10	11	12	13	14	15	16	17
9	9	10	11	12	13	14	15	16	17	18

Use it like this for $7 + 8$.



Write $7 + 8 = 15$.

Add. Use the table if you need to.

1. $1 + 3$ **2.** $2 + 2$
3. $4 + 1$ **4.** $4 + 6$
5. $5 + 2$ **6.** $2 + 6$
7. $6 + 0$ **8.** $7 + 2$
9. $2 + 1$ **10.** $5 + 5$
11. $1 + 9$ **12.** $2 + 4$
13. $5 + 4$ **14.** $3 + 5$
15. $8 + 5$ **16.** $4 + 9$
17. $7 + 9$ **18.** $6 + 5$
19. $6 + 6$ **20.** $5 + 9$
21. $8 + 7$ **22.** $9 + 9$
23. $3 + 8$ **24.** $7 + 5$
25. $6 + 7$ **26.** $8 + 4$

How long does it take you to do these exercises?

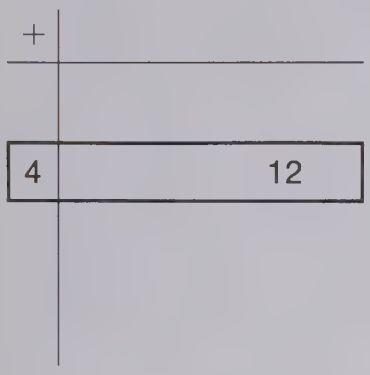
How many can you do in one minute?

27.	3	**28.**	6	**29.**	2	**30.**	3
	$+2$		$+1$		$+8$		$+3$
31.	8	**32.**	1	**33.**	0	**34.**	3
	$+1$		$+7$		$+3$		$+7$
35.	6	**36.**	4	**37.**	1	**38.**	4
	$+3$		$+4$		$+5$		$+3$
39.	9	**40.**	8	**41.**	7	**42.**	9
	$+2$		$+6$		$+7$		$+8$
43.	7	**44.**	3	**45.**	5	**46.**	9
	$+4$		$+9$		$+7$		$+4$
47.	8	**48.**	6	**49.**	4	**50.**	7
	$+8$		$+9$		$+8$		$+8$

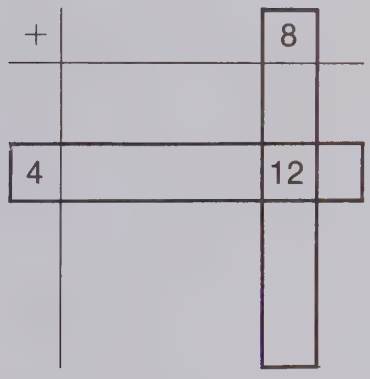
Skill Practice – Subtraction

The addition table can help you with the basic subtraction facts.

For $12 - 4$, find 4 and 12 like this.



Then find the difference at the top.



Write $12 - 4 = 8$.

Subtract. Use the addition table if you need to.

1.	$7 - 5$	**2.**	$9 - 2$
3.	$4 - 3$	**4.**	$8 - 7$
5.	$5 - 1$	**6.**	$5 - 0$
7.	$9 - 6$	**8.**	$8 - 3$
9.	$6 - 2$	**10.**	$7 - 4$
11.	$10 - 6$	**12.**	$10 - 3$
13.	$11 - 8$	**14.**	$12 - 9$
15.	$17 - 8$	**16.**	$11 - 5$
17.	$15 - 9$	**18.**	$12 - 4$
19.	$13 - 8$	**20.**	$14 - 5$
21.	$11 - 7$	**22.**	$12 - 6$
23.	$16 - 8$	**24.**	$15 - 7$
25.	$12 - 5$	**26.**	$14 - 8$

How long does it take you to do these exercises?

How many can you do in one minute?

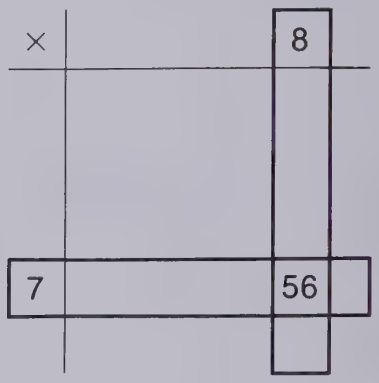
27.	$8 - 6$	**28.**	$5 - 4$	**29.** $4 - 2$ **30.** $6 - 3$
31.	$7 - 1$	**32.**	$4 - 4$	**33.** $5 - 2$ **34.** $9 - 4$
35.	$10 - 2$	**36.**	$10 - 9$	**37.** $11 - 6$ **38.** $10 - 5$
39.	$13 - 7$	**40.**	$15 - 6$	**41.** $12 - 8$ **42.** $16 - 7$
43.	$11 - 9$	**44.**	$13 - 4$	**45.** $15 - 8$ **46.** $11 - 3$
47.	$18 - 9$	**48.**	$14 - 7$	**49.** $12 - 3$ **50.** $14 - 9$

Skill Practice – Multiplication

This multiplication table shows basic multiplication facts.

×	1	2	3	4	5	6	7	8	9
1	1	2	3	4	5	6	7	8	9
2	2	4	6	8	10	12	14	16	18
3	3	6	9	12	15	18	21	24	27
4	4	8	12	16	20	24	28	32	36
5	5	10	15	20	25	30	35	40	45
6	6	12	18	24	30	36	42	48	54
7	7	14	21	28	35	42	49	56	63
8	8	16	24	32	40	48	56	64	72
9	9	18	27	36	45	54	63	72	81

Use it like this for 7×8.



Write $7 \times 8 = 56$.

Multiply. Use the table if you need to.

1. 2×4 **2.** 7×1
3. 2×3 **4.** 3×3
5. 4×3 **6.** 6×2
7. 3×6 **8.** 5×3
9. 9×2 **10.** 2×8
11. 5×5 **12.** 6×4
13. 8×3 **14.** 3×9
15. 7×4 **16.** 4×5
17. 6×5 **18.** 9×4
19. 5×7 **20.** 8×5
21. 7×7 **22.** 5×9
23. 9×7 **24.** 8×8
25. 6×9 **26.** 8×9

How long does it take you to do these exercises?

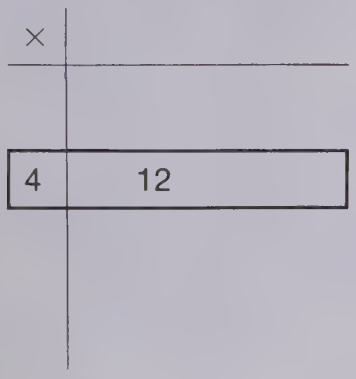
How many can you do in one minute?

27. 3×2	**28.** 1×4	**29.** 4×2	**30.** 2×2
31. 5×2	**32.** 4×4	**33.** 2×7	**34.** 6×3
35. 3×8	**36.** 5×4	**37.** 7×3	**38.** 4×6
39. 4×9	**40.** 7×5	**41.** 6×6	**42.** 8×4
43. 6×8	**44.** 9×5	**45.** 7×6	**46.** 5×8
47. 7×9	**48.** 9×9	**49.** 7×8	**50.** 9×6

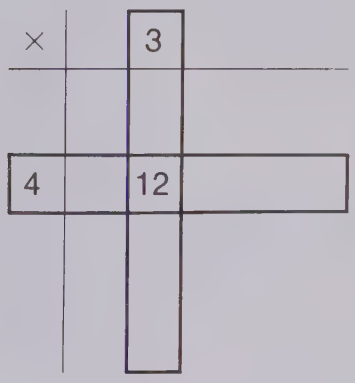
Skill Practice – Division

The multiplication table can help you with the basic division facts.

For $12 \div 4$ or $4\overline{)12}$, find 4 and 12 like this.



Then find the quotient at the top.



Write $12 \div 4 = 3$ or $4\overline{)12}^{\,3}$.

Divide. Use the multiplication table if you need to.

1. $10 \div 2$ **2.** $8 \div 4$
3. $6 \div 2$ **4.** $12 \div 6$
5. $4 \div 1$ **6.** $16 \div 8$
7. $9 \div 3$ **8.** $18 \div 2$
9. $27 \div 9$ **10.** $18 \div 6$
11. $15 \div 3$ **12.** $20 \div 5$
13. $24 \div 3$ **14.** $28 \div 7$
15. $49 \div 7$ **16.** $30 \div 5$
17. $40 \div 5$ **18.** $35 \div 7$
19. $32 \div 8$ **20.** $42 \div 6$
21. $45 \div 5$ **22.** $64 \div 8$
23. $54 \div 9$ **24.** $56 \div 8$
25. $72 \div 8$ **26.** $63 \div 7$

How long does it take you to do these exercises?

How many can you do in one minute?

27. $2\overline{)12}$	**28.** $4\overline{)12}$	**29.** $7\overline{)14}$	**30.** $2\overline{)16}$
31. $2\overline{)4}$	**32.** $9\overline{)18}$	**33.** $7\overline{)7}$	**34.** $2\overline{)8}$
35. $5\overline{)10}$	**36.** $2\overline{)14}$	**37.** $3\overline{)12}$	**38.** $3\overline{)6}$
39. $3\overline{)21}$	**40.** $4\overline{)28}$	**41.** $3\overline{)18}$	**42.** $5\overline{)25}$
43. $5\overline{)15}$	**44.** $6\overline{)24}$	**45.** $4\overline{)20}$	**46.** $3\overline{)27}$
47. $4\overline{)16}$	**48.** $8\overline{)24}$	**49.** $7\overline{)21}$	**50.** $4\overline{)24}$
51. $5\overline{)35}$	**52.** $9\overline{)36}$	**53.** $7\overline{)42}$	**54.** $6\overline{)48}$
55. $4\overline{)32}$	**56.** $8\overline{)40}$	**57.** $8\overline{)48}$	**58.** $6\overline{)30}$
59. $9\overline{)45}$	**60.** $4\overline{)36}$	**61.** $6\overline{)36}$	**62.** $9\overline{)81}$
63. $6\overline{)54}$	**64.** $7\overline{)56}$	**65.** $9\overline{)72}$	**66.** $9\overline{)63}$

Symbols

cm	centimetre
dm	decimetre
m	metre
km	kilometre
cm^2	square centimetre
cm^3	cubic centimetre
mL	millilitre
L	litre
g	gram
kg	kilogram
°C	degree Celsius
s	second
min	minute
h	hour
d	day
km/h	kilometre per hour
+	plus
−	minus
×	times
÷	divided by
=	is equal to, equals
>	is greater than
<	is less than
·	decimal point
$	dollars
¢	cents

Table of Related Units

10 cm = 1 dm	(10 centimetres = 1 decimetre)
10 dm = 1 m	(10 decimetres = 1 metre)
100 cm = 1 m	(100 centimetres = 1 metre)
1000 m = 1 km	(1000 metres = 1 kilometre)
	(1000 millilitres = 1 litre)
1000 g = 1 kg	(1000 grams = 1 kilogram)
100¢ = $1.00	(100 cents = 1 dollar)
60 s = 1 min	(60 seconds = 1 minute)
60 min = 1 h	(60 minutes = 1 hour)
24 h = 1 d	(24 hours = 1 day)
7 d = 1 week	(7 days = 1 week)
365 d = 1 year	(365 days = 1 year)
366 d = 1 leap year	(366 days = 1 leap year)
52 weeks = 1 year	
12 months = 1 year	

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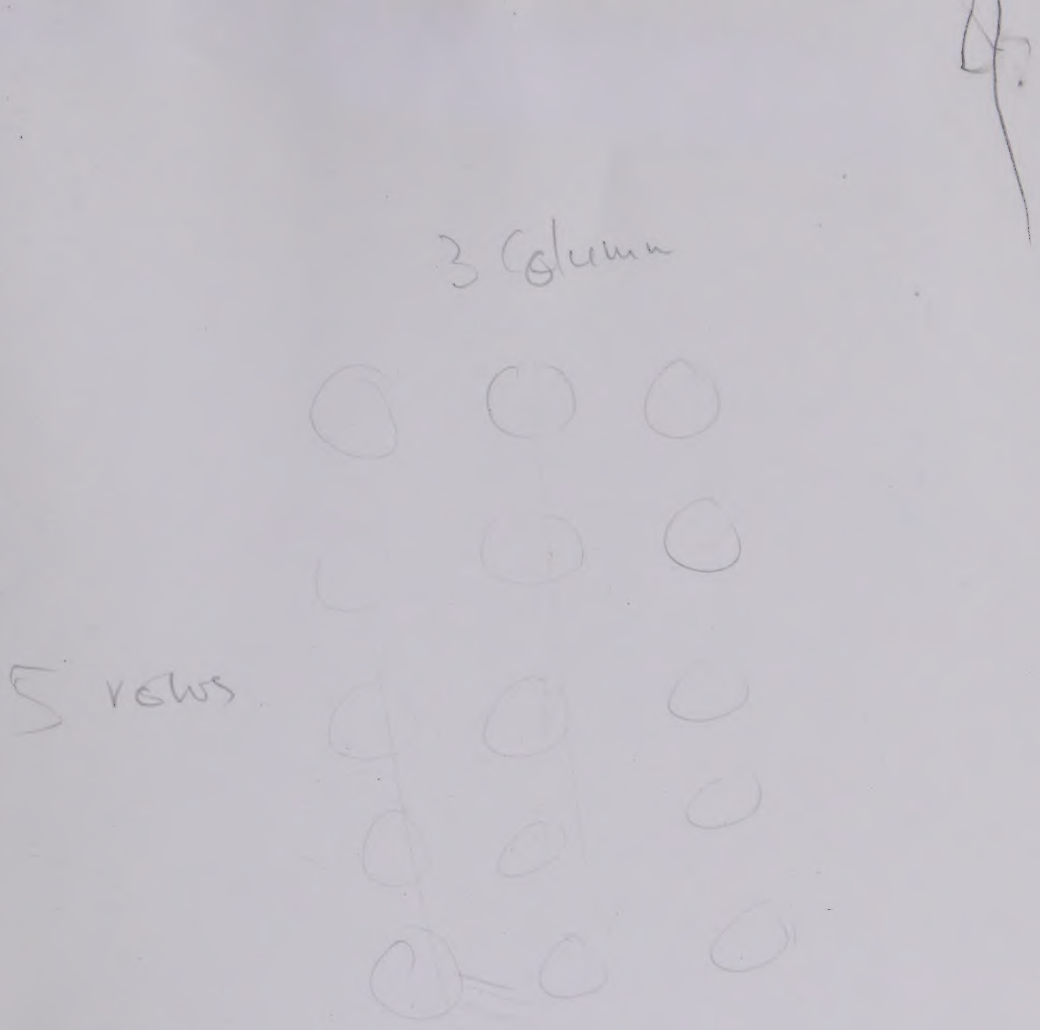
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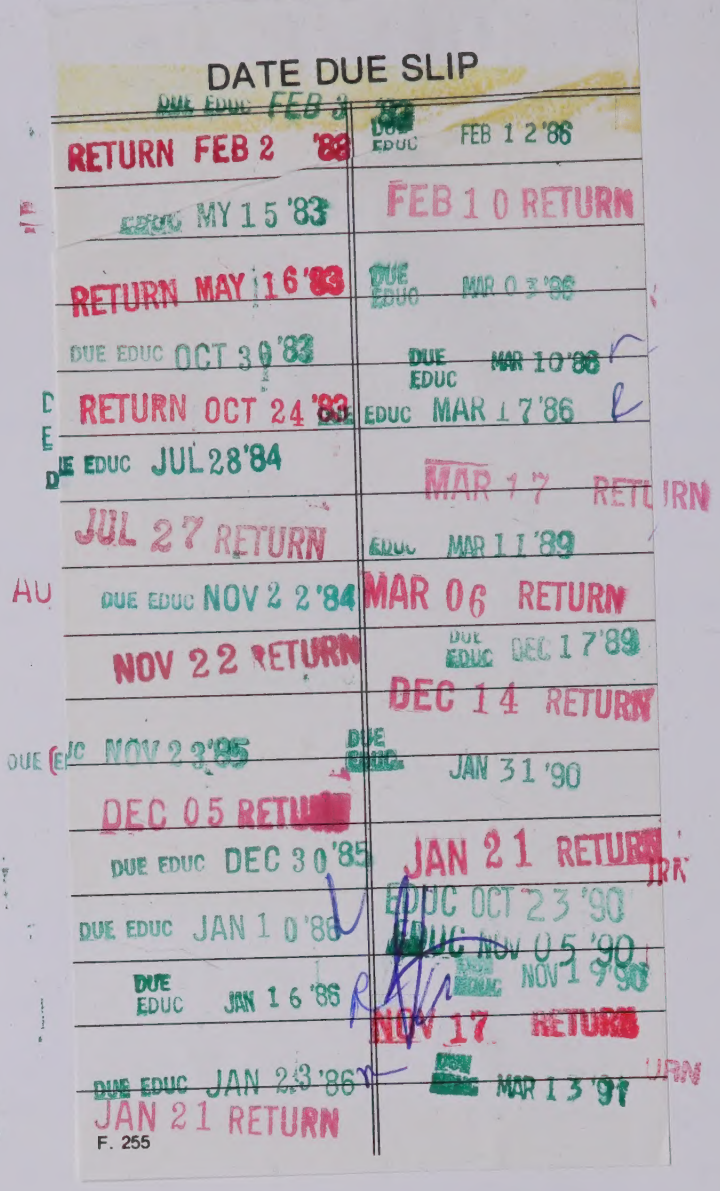
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